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ROYAL BOTANIC GARDENS, KEW

XXXVIII.—FUNGI FROM KENYA COLONY.* M. M. DUKE.

During the past few years many collections of fungi from Kenya Colony have been received at Kew and elsewhere, and when new species have occurred, they have been described in various periodicals. No systematic enumeration, however, of the fungus flora has hitherto been attempted, and there was no ready means of reference to these descriptions. With the growing importance of agriculture in the country, and the work now being carried out by resident mycologists, the need of such an enumeration has been increasingly apparent. To meet this requirement, the present preliminary list has been prepared.

Kenya Colony lies between 5° North and 5° South of the Equator, and between the 34th and 43rd parallels of East Longitude. From a low-lying coastal belt and plains directly inland, the country rises towards a central tableland of from 6,000 to 8,000 ft., culminating in Mt. Kenya, 17,040 ft. high. There are thus two distinct physical and climatic regions with a corresponding differentiation in the vegetation.

The climate of the highland regions, which lie across the Equator, is temperate, while above 7,000 ft. it becomes colder and frosts are experienced. The rainfall of these uplands is between 40 and 50 inches a year. In this temperate climate European and even British fungi flourish. The chief crops grown in the central and western highlands are potatoes, fruit, vegetables, maize, simsim and beans. Coffee, wheat and barley are cultivated with great and increasing success. Since the growing of these crops forms such an important factor in the commercial interests of the country, it is not surprising to find that many of the records from this part are fungi associated, whether pathologically or not, with these crops.

The following remarks on the lowland coastal belt are based on notes supplied by Mr. T. D. Maitland. He collected in this region in the tropical belt from Mombasa in the south, to Witu in the north. The rainfall at Mombasa is, on an average, 50 in. a year, decreasing northwards to 37 in. at Witu. There are two rainy periods annually due to the monsoons, and alternately two

* Lists of the fungus flora of other British Colonies have been published in the *Kew Bulletin* as follows :—
Nigeria—*Kew Bull.* 1912, p. 141 ; 1914, p. 253 ; 1917, p. 105.
Uganda—*Kew Bull.* 1917, p. 1 ; 1920, p. 289.

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dry periods of excessive heat, and consequently rapid evaporation. During the dry season the country becomes parched, and presents a very unpromising unfertile appearance, but with the onset of the rains the whole aspect is quickly changed, the parched grassland becomes green, and dried-up trees are clothed with foliage.

The vegetation throughout this portion of the coast is, in spite of the rainy seasons, of a typically xerophilous character. One outstanding feature is the wide distribution of the " Doum " palm, *Hyphaene thebaica* Theban, which can withstand the semi-arid conditions and the annual grass fires. From Mombasa northwards these palms increase in number, whilst southwards they decrease in proportion to the increase in rainfall. In addition to the " Doum " palm other characteristic plants are scrubby Euphorbias, Aloes, Sansevierias and Zamias, together with many succulents. Along the coast are numerous coconut palms, mangroves, etc., while the crop plants are chiefly grains, cassava, sweet potatoes and rice, the latter where conditions at river mouths are favourable.

The particular areas of the coast belt over which observations were carried out were Mombasa and Mazeras localities, which include Rabai, Ribi, Mwachi, and Chamgamwi; Kilifi and Malindi, 30 and 50 miles to the north of Mombasa respectively, and Lamu and Witu near the estuary of the Tana River in the north. In the Mazeras region are several small forests; these and the Gongoni forest near Lamu and Witu were examined fairly thoroughly, and this latter area provided a fine fungus field. At Kau, on the banks of the Ozi, a tributary of the Tana, are numerous rice fields on the sites of small forests. On dead logs which remain, and which are occasionally submerged by floods, some fine material of *Polystictus funalis* Fr. was gathered, and also *Trametes corrugata* (Pers.) Bres.; this latter was of the thick hoof-shaped type with the red staining at the base very pronounced. On the under side of these fallen logs large sheets of *Stereum Schomburgkii* Berk. were observed. This has a slightly " shot " appearance when young and fresh, owing to the numerous bristles and setae on the pileus. *Trametes cingulata* Berk. was common almost everywhere, even on the old posts at the Arab wells, and on the old and hard " boriti " (mangrove poles) lying on the sea beach at Lamu. *Polystictus xanthopus* Fr. and *Polystictus incomptus* Fr. were found to be common in the forest regions. *Ganoderma lucidum* (Leys.) Karst. was very frequent in forest clearings, especially in the Witu district. These fungi were usually found as stiped, broadly pileate forms growing up from the dead roots, also on dead palm stumps, and on living " Doum " palms which had been injured presumably by grass fires. Yellow forms of this species have been collected on several occasions, and at Mombasa this form had quite taken possession of an old *Casuarina* stump near the sea. A type which seems to enjoy a hot moist sandy soil charged with humus is *Lentinus Tuber-regium* Fr., several fine groups of which were seen in sandy soil associated with debris from old palm stumps near

Kau and Witu. Numerous sclerotia of this fungus were found in *Oryctes* Beetle traps, which are pits filled with palm debris.

One of the most curious fungi collected by Mr. Maitland in this coastal belt is *Podaxon loandensis* Welw. & Curr., which was found almost at tidal level at Lamu Bay, and again in an old Arab graveyard near Mombasa. The sporing head of this fungus is set on a long column or stipe, and resembles at first sight a partly developed Agaric. Another interesting record is *Ganoderma Emini* P. Henn. It has usually a long stipe, often a foot long, with a small circular pileus. This and the stipe are shiny and laccate. The stipe is normally centrally attached, but at times, owing to the position of the plant to the matrix, the pileus is only partly developed and the stipe appears laterally attached. The first group observed was on the dead upturned roots of a prostrate M'sandarusi tree (*Trachylobium Hornemannianum* Hayne) in the Mazeras Forest. The mycelium had travelled from the base of the roots and rootlets, and thrown up sporophores at the points. The same fungus was observed again in the open, springing up round trees. The pilei were very much bleached by the sun and rather poorly developed.

Two other fungi common in this region are *Trametes hydnoides* (Sw.) Fr., occurring on a variety of hosts but mostly on the "rain tree" (*Pithecolobium saman* Benth.), and *Polystictus occidentalis* (Kl.) Fr., which is ubiquitous.

Fomes rimosus (Berk.) Fr. occurs on *Afzelia cuanzensis* Welw. and is frequent on Acacias and many other trees in the Savannah, often on the end of broken limbs which have partly healed up. It is apparently a slow parasite similar as regards its parasitic habits to *Polyporus hispidus* (Bull.) Fr. of the Ash. Some of the trees carrying large sporophores showed little sign of disease. The fungus occurs all along the Coast belt and was seen amongst the Acacia scrub on the waterless tract inland.

The specimens on which this enumeration is based are chiefly from collections made by Mr. T. D. Maitland, when he was chief of the Economic Plant Division, Nairobi; Mr. W. J. Dowson, formerly Mycologist to the Agricultural Department, Kenya; Mr. J. McDonald, Mycologist (Agricultural Department, Kenya) and Mr. R. Dummer. Reference has also been made to Miss A. Lorrain Smith's "East African Fungi" (Journ. Bot. xxxiii, 1896, p. 340), Herrn H. & P. Sydow's "Fungi africani novi" (Engl. Bot. Jahrb. xlv, 1910, p. 259), and the Annual Reports of the Department of Agriculture, Kenya, 1919–24.

This paper was undertaken at the suggestion and under the kind supervision and help of Miss E. M. Wakefield.

Agaricaceae.

Lentinus villosus *Kl.* in Linnaea viii, 1883, p. 479.
On fallen trunks, etc., near the coast, *Dowson* 181.

Lentinus velutinus *Fr.* in Linnaea v, 1830, p. 510.
On a well-decayed tree trunk, Gongoni Forest, Sept., *Maitland* 527.

Lentinus Tuber-regium *Fr.* Epicr. p. 392.
In sandy soil round Kau and Witu, *Maitland* ; nr. Mombasa, *Maitland*.

Lenzites abietina (*Bull.*) *Fr.* Epicr. p. 407.
On a prostrate log a few feet above high-water mark, Lamu, Sept., *Maitland* 518.

Schizophyllum commune *Fr.* Syst. Myc. i, p. 333.
On felled and barked *Warburgia ugandensis*, forests at Njoro (Rift Valley), 7500 ft., rainfall about 30 in., *Dowson* 172; nr. Mombasa, *Maitland* 513; Gopo lal Mari, 9th June, *Gregory*.

POLYPORACEAE.

Polyporus arcularius (*Batsch.*) *Fr.* Syst. Myc. i, p. 342.
Nairobi, *Dowson*.

Polyporus gilvus (*Schw.*) *Fr.* Elench. i, p. 104.
On a prostrate log, Gongoni Forest, Sept., *Maitland* 546; on a decayed stump, Mazeras Forest, Jan., *Maitland* 571.

Polyporus durus *Jungh.* Crypt. Java, p. 62.
On a dead tree trunk, Mazeras Forest, Jan., *Maitland* 566.

Polyporus (Amauroderma) conjunctus *Lloyd*, Myc. Notes v, 1918, p. 812.
Amongst grass on ground beneath trees, and attached to dead roots, Mazeras, Jan., *Maitland* 561.
Always associated with *Ganoderma lucidum*. The spores of these specimens are very pale brownish when mature.

Ganoderma lucidum (*Leys.*) *Karst.* in Rev. Myc. 1881, No. 9, p. 17.
Rabai Hills, *Rev. W. E. Taylor*; Ngatana, sandy steppes N.E. of Giri Mangea, *Gregory*; on trunks, etc., near coast, *Dowson* 174; on a dead stump, Mwachi River, Mazeras, *Maitland* 583; young forms, Kisimani (Mazeras) Forest, *Maitland* 582.

Ganoderma Alluaudi *Pat. et Har.* in Bull. Soc. Myc. Fr. xxv, 1906, p. 117.
Nairobi; Kikuyu, Aug., 1903, *Alluaud*; Nairobi, *Dowson* 526.

Ganoderma Emini *P. Henn.* in Engl. Bot. Jahrb. xvii, 1893, p. 24.
Growing associated with the roots of a dead tree, Mazeras Forest, June, *Maitland* 539.
Fairly common in such situations.

Ganoderma Henningsii *Lloyd*, Synopsis Stip. Polyp. 1912, p. 105.
Forest, Nairobi, *Maitland* 586; Mombasa, *Maitland* 539 p.p.

Ganoderma simulans *Wakef.* in Kew Bull. 1922, p. 161.
On ground under bushes and growing up from dead roots of trees. Mazeras, March, *Maitland* 556.
Fairly plentiful in this locality but no very regular specimens obtained. Large specimens generally eaten by insects and broken up. Ungulate forms develop on sides of stumps.

Ganoderma applanatum (*Pers.*) *Pat.* Hymen. d'Europe, p. 143.
On an old stump, Kaimosi, Nyanza Province, 1925, *McDonald.*

Fomes senex (*Nees et Mont.*) *Fr.* Nov. Symb. p. 66.
Coastal belt, *Maitland.*

Fomes pseudosenex (*Murr.*) *Sacc. & Trott.* Syll. xxi, p. 292.
On a dead stump, Gongoni Forest, Witu, *Maitland* 581.

Fomes badius (*Berk.*) *Cke.* in Grev. xiv, 1885, p. 18.
On a dead erect stump in the open, Mazeras, June, *Maitland* 543.

Fomes yucatanensis (*Murr.*) *Sacc. & D. Sacc.* Syll. xvii, p. 116.
On a dying Olive, Solai Valley, 7000 ft., Nov., *McDonald* 9.

Fomes rimosus (*Berk.*) *Fr.* Nov. Symb. p. 66.
On dead or living trees, Mazeras Forest, *Maitland.*

Fomes juniperinus (*Schrenk*) *Sacc. & Syd.* Syll. xvi, p. 151.
On *Juniperus procera* causing rot, Aberdare Range, Kikuyu, and Mau Escarpments of Rift Valley, and N.W. slopes of Mt. Kenya, *Dowson* 176.

This fungus is responsible for causing the most serious disease of forest trees in East Africa (Dowson in Wakefield, *Kew. Bull.* 1915, p. 102).

Polystictus incomptus *Fr.* Epicr. p. 437.
On branches buried in leaf debris, Mazeras Forest, June, *Maitland* 535; Rabai Hills, Mombasa, *Rev. W. E. Taylor.*

Polystictus xanthopus *Fr.* Nov. Symb. p. 74.
Abundant in damp forest behind Kau; frequent in all parts of the Coast except Mombasa area, where strangely it was not collected, *Maitland* 532.

Polystictus sanguineus *Fr.* Nov. Symb. p. 75.
On fallen trunks and stumps near coast, *Dowson* 179; *Maitland* 545; Sabakhi Valley, E. of Makangeni, Aug., *Gregory.*

Polystictus elongatus (*Berk.*) *Cke.* in Grev. xiv, 1886, p. 80.
Kibwezi, *Gregory.*

Polystictus funalis *Fr.* Epicr. p. 459.
On old stumps in rice fields, Kau, Witu, Sept., *Maitland* 538.

Polystictus chrysites (*Berk.*) *Cke.* in Grevillea xiv, 1886, p. 82.
Guan Narok, June, *Gregory.*

Polystictus floccosus *Jungh.* Fl. Crypt. Jav. p. 49.
On rotten stumps and logs in Rice fields, Kau, Witu; on dead tree trunk, Ribi, near Mazeras, Sept., *Maitland* 510; on a mangrove pole lying in a yard, Lamu, Sept., *Maitland* 547.

Polystictus versicolor (*Linn.*) *Fr.* Nov. Symb. p. 86.
On fallen trunks and stumps near the Coast, *Dowson* 178, 182; on the south of south spur of Yatta, *Gregory.*

Polystictus hirsutus *Fr.* Nov. Symb. p. 86.
Nandi, 6000 ft., on logs, *Scott Elliot* 86; Athi Plains, 5000–6000 ft., on dead logs, *Scott Elliot* 34 and 35.

Polystictus velutinus *Fr.* Syst. Myc. i, p. 368.
Ngomeni, *Gregory*.

Polystictus occidentalis (*Kl.*) *Fr.* Nov. Symb. p. 90.
On fallen trunks near the coast, *Dowson* 173; on a prostrate log, Mazeras, July, *Maitland* 540. This is a common fungus along the coast.

Polystictus rigens *Sacc. & Cub.* Syll. vi, p. 274.
Trametes rigida Berk. & Mont. in Ann. sc. nat. sér. 3, xi, 1849, p. 240.
On stout dead branches, Gongoni Forest, Witu, Sept., *Maitland* 525.

Polystictus byrsinus (*Mont.*) *Cke.* in Grev. xiv, 1886, p. 85.
On a well-decayed log, Gongoni Forest, Witu, Sept., *Maitland* 544.

Polystictus luteo-olivaceus *Berk. & Br.* in Trans. Linn. Soc. ser. 2, i, 1880, p. 402.
Nairobi, *Dowson* 527.

Polystictus caperatus (*Berk.*) *Fr.* Nov. Symb. p. 92.
On a dead log, Gongoni Forest, Witu, Sept., *Maitland* 514.

Polystictus Gregorii *A. L. Smith*, Journ. of Bot. xxxiii, 1895, p. 341.
Mangea, *Gregory*.

Trametes corrugata (*Pers.*) *Bres.* in Hedwigia li, 1912, p. 316.
On dead logs, Gongoni Forest, Witu, *Maitland*.

Trametes cingulata *Berk.* in Hook. Journ. Bot. 1854, p. 164.
On a prostrate log lying 5 ft. or more above high tide mark, Lamu, Sept., *Maitland* 512.

Trametes Sprucei *Berk.* in Hook. Lond. Journ. Bot. viii, 1856, p. 236.
Woods around Ngatana, *Gregory*.

Trametes floccosa *Bres.* in Ann. R. Ist. Bot. Roma, vi, 1896, p. 179.
On decayed tree stumps, fungus growing at ground level, Ribi, Mazeras, also Witu, Jan., *Maitland* 565.

Trametes versatilis *Berk.* in Hook. Lond. Journ. Bot. i, 1842, p. 150.
In woods S.E. of Mangea, *Gregory*; on the side of a prostrate coconut palm, Mazeras, July, *Maitland* 550; on a decayed prostrate coconut trunk, Chamgamwi, near Mombasa, Jan., *Maitland* 554; on a decayed telegraph support, Nairobi, Feb., *Maitland* 558.

Trametes hydnoides (*Sw.*) *Fr.* Epicr. p. 490.
Rabai Hills, Mombasa, *Rev. W. E. Taylor*; on stumps, Kau, Kilifi, Mazeras, Rabai Hills, Mombasa, *Maitland* 511.

Trametes incerta (*Curr.*) *Cke.* in Grevillea xv, 1886, p. 56.
On a dead erect tree trunk near high tide level, Nkunumbi Creek, Witu, April, *Maitland* 553.

Currey's original specimen from Burma was largely resupinate with only a small reflexed margin. Large bracket-shaped forms have since been received from India. The present collection has a large number of imbricated small pilei, connected by resupinate portions, and the pores tend to be more daedaleoid than in the Indian gatherings, but there is no doubt that the plant belongs to the same species.

It is allied to *Daedalea Sprucei* and *Daedalea fusco-stratosa* of South America, which are somewhat darker in colour. All these forms are characterised by the dull brownish colour of flesh and pores, and by possessing small slightly coloured fusiform cystidia, 20–25 x 6–7 μ, which when young are capped by a small deposit of crystals.

Hexagonia Pobeguini *Har.* in Bull. Soc. Myc. Fr. viii, 1892, p. 28.
On a prostrate tree trunk, Mazeras Forest, Jan., *Maitland* 533, 550.

Hexagonia sericata *Wakef.* in Kew Bull. 1922, p. 161.
On dead wood, Nairobi, *Maitland* 534.

Hexagonia subvelutina *Wakef.* in Kew Bull. 1917, p. 310.
On wood, *Dowson* 530.

Favolus Rhipidium (*Berk.*) *Cke.* in Grev. xv, 1886, p. 58.
Upper forest zone, Mt. Kenya, *Gregory*.

Favolus multiplex *Lév.* in Ann. sci. nat. sér. 3, ii, 1844, p. 203.
Nairobi, *Dowson* 528.

HYDNACEAE.

Irpex flavus *Kl.* in Linnaea viii, 1833, p. 488.
On a fallen branch, Gongoni Forest, Sept., *Maitland* 526; on a charred log in the open, Mazeras, April, *Maitland* 551.

THELEPHORACEAE.

Stereum Thozetii *Berk.* in Journ. Linn. Soc. xviii, 1881, p. 385.
Growing amongst sand on a road, Witu, May, *Maitland* 530.

The type species of *S. Thozetii* comes from Australia, but these Kenya specimens agree well with it in their macroscopic characters as well as in their thick walled hyphae, abundant gloeocystidia and in the shape of the spores. The latter are however slightly larger, being 7–8 x 5 μ here, and in the type 5–7 x 5 μ.

Stereum fasciatum (*Schw.*) *Fr.* Epicr. p. 546.
On an old log, Gongoni Forest, Witu, Sept., *Maitland* 520.

Stereum hirsutum (*Willd.*) *Fr.* Epicr. p. 549.
Woods round Ngatana, Jan., *Gregory*; Rengatan, Ndari, Leikipia, June, *Gregory*.

Stereum lobatum *Fr.* Epicr. p. 547.
Hohnel Valley, Sabakhi Valley, Guan Narok, *Gregory*.

Stereum Schomburgkii *Berk.* in Journ. Linn. Soc. xiii, 1873, p. 168.
On the under sides of fallen logs, Gongoni Forest, etc., Sept., *Maitland* 542.

Hymenochaete luteo-badia (*Fr.*) *Wakef.* in Kew Bull. 1917, p. 13.
Mombasa, *Maitland* 516.

Hymenochaete tristicula (*B. & Br.*) *Mass.* in Journ. Linn. Soc. xxvii, 1890, p. 111.
Coastal belt, *Maitland*.

Hymenochaete corrugata (*Fr.*) *Lév.* in Ann. sci. nat. sér. 3, v, 1846, p. 152.
On a dead log, Gongoni Forest, Witu, Sept., *Maitland* 515.

This specimen is very much thicker than the European specimens, but its structure is similar to the latter. No spores were found.

Hymenochaete semistupposa *Petch* in Ann. R. Bot. Gard. Perad. ix, 1925, p. 278.
On fallen branches, Gongoni Forest, Sept., *Maitland* 517.

The setae in this specimen are slightly shorter than those in Petch's type, but otherwise the colour and structure are exactly similar.

Corticium salmonicolor *B. & Br.* in Journ. Linn. Soc. xiv, 1875, p. 71.
On leaves and twigs of Coffee, Dec. 1923, Mar. 1924, *McDonald*.

Corticium salmonicolor is normally a species which grows on bark, but in these specimens it was found to be epiphytic on leaves. In the second of the two gatherings the transition from the normal to the abnormal habitat, *i.e.* from the twig to the leaf blade, is well illustrated. On the leaf basidia were found to be numerous, but no spores were seen.

Cyphella villosa (*Pers.*) *Karst.* Myc. Fenn. p. 325.
On a twig of *Sesbania* sp., Kaimosi, Nyanza Province, *McDonald*.

TREMELLACEAE.

Auricularia polytricha (*Mont.*) *Sacc.* Misc. i, p. 12, in Atti d. R. Istit. Ven. di Sci. ser. 6, ii, 1884.
On decayed logs, Witu and Kau, Sept., *Maitland* 541.

Auricularia Auricula-Judae (*Linn.*) *Schroet.* in Cohn. Krypt. Fl. Schles. III, i, p. 386.
Kibwezi, *Gregory*.

GASTEROMYCETES.

Podaxon loandensis *Welw. & Curr.* in Trans. Linn. Soc. Lond. xxvi, 1867, p. 288.

In sand on a piece of cleared litoral, Mombasa, *Dowson* 183; *Maitland* 531.

Podaxon sp. (*loandensis* ?) is common in the Sudan, and according to Mr. R. E. Massey the spores are used by the natives to obtain a yellowish dye for carpets.

Lasiosphaera Fenzlii *Reich.* in Fenzl, Reise der Fragatte Novara, Bot. Theil i, 1870, p. 135.
On the ground in forest nursery, Rongai Forest, Nov., *McDonald* 11.

These specimens are scarcely mature. The gleba is alutaceous-olivaceous in colour instead of purplish umber.

McDonald states that according to the forester " the dried fungi are used by the natives to fumigate their huts. The fungi are thrown on the fire, after which the natives vacate the huts for the time being, owing to the injurious effects of the fumes on the eyes."

UREDINEAE.

Uromyces Fabae (*Pers.*) *De By.* in Ann. sci. nat. sér. 4, xx, 1863, p. 80.
Uredo on " Egyptian Bean " and " Broad Bean," *A. Linton* 141; on *Vicia Faba* leaves, 26th Sept. 1916, *Dowson*.

Uromyces appendiculatus (*Pers.*) *Link*, Obs. ii, 1809, p. 28.
On *Phaseolus* sp., *Dowson*.

Uromyces striatus *Schroet.* in Abhandl. Schles. Ges. 1869, p. 11.
On cultivated Lucerne, Nairobi, *A. Linton* 229; on cultivated Lucerne, Limoru, Feb., *Dummer* 1742.

Uromyces Ixiae (*Lév.*) *Wint.* in Flora xlii, 1884, p. 262.
On leaves of *Acidanthera bicolor* Hochst. Gilgil and Elmenteita, 5000–6000 ft., *Battiscombe* 1219.

Uromyces pustulatus *Wakef.* in Kew Bull. 1922, p. 163.
On leaves, inflorescences and fruits of *Bauhinia fassoglensis* Kotschy, Kibos, Mombasa, Feb. 1921, *Maitland*.

Uromyces Setariae-italicae (*Diet.*) *Yoshino* in Bot. Mag. Tokyo, xx, 1906, p. 247.
On *Setaria verticillata*, Oct. 1916, *Dowson*.

Kuehneola Fici (*Cast.*) *Butl.* in Ann. Myc. xii, 1914, p. 79.
Uredo-stage on cultivated fig, Nairobi, *A. Linton* 230.

Hemileia vastatrix *B. & Br.* in Gard. Chron. 1869, p. 1157.
On leaves of Coffee, *Dowson*.

Dowson in the Ann. Rept. Dept. Agric. Kenya 1919–20, p. 80, states that in Kenya, Coffee leaf disease, which is caused by this fungus, has become so widespread that towards the end of the long rains it is to be found on almost every plantation. The damage caused by this disease seems to depend largely on the altitude of the plantations and their state of cultivation.

Melampsorella (?) **Ricini** (*Biv.*) *de Toni* in Sacc. Syll. vii, p. 596.
On leaves of *Ricinus communis*, 26th Sept. 1916, *Dowson*.

Puccinia Asparagi *DC.* Flor. Fr. ii, p. 595.
Aecidium only on leaves of Asparagus, Mt. Ndei, *Scott Elliot* 23.

Puccinia Menthae *Pers.* Syn. p. 227.
On Labiatae, Limoru, Feb. 1915, *Dummer* 1748.

Puccinia graminis *Pers.* Disp. Meth. Fung. 1797, p. 40, and Syn. 1801, p. 228.
Uredo on Wheat, 1905, *A. Linton*; on wheat and oats, chiefly at Machakos, W. Kenya, Njoro and Uasin Gishu Plateau, 1916, *Dowson*.

P. graminis and *P. glumarum* are the two dangerous rusts in the country.

Puccinia Sorghi *Schw.* Syn. N. Amer. Fungi in Trans. Amer. Phil. Soc. Philad. N.S. iv, 1834, p. 295.
Uredo on Maize, 1905, *A. Linton*.

Puccinia aliena *Syd.* in Engl. Bot. Jahrb. xlv, 1910, p. 259.
On leaves of *Alchemilla* sp., 26th Sept. 1916, *Dowson*.

On these leaves there are also present uredosori, hypophyllous, radially arranged, confluent, pale yellow; spores globose or subglobose, echinulate, yellowish, 17–22 μ diam. These may be the uredosori of the Puccinia, but seem to answer also to the description of *Uromyces alchemillae* Lév.

Puccinia Erlangeae *Grove* in Kew Bull. 1916, p. 270.
On leaves of *Erlangea tomentosa*, Nairobi, Limoru, Feb., *Dummer* 1745.

"Belongs to type of *P. Hieracii*, but is remarkable for its very thin wall." (Grove loc. cit.)

Puccinia glumarum (*Schm.*) *Eriks. & Henn.* Die Getreideroste, 1896, p. 141.
Yellow rust of wheat.
Wheat attacked severely at Njoro, Solai Escarpment and Keringet, *Dowson*.

Puccinia haematites *Syd.* in Engl. Bot. Jahrb. xlv, 1910, p. 260.
On leaves of *Triaspis auriculata*, Kibwezi, June, *Scheffler* 4.

Puccinia leonotidicola *P. Henn.* in Bot. Ergeb. der Kunene-Sambesi Exped. 1902, p. 3.
Uredo stage only on leaves of *Leonotis* sp., 23rd July 1915, Kabiti Road., *Dowson*; 26th Sept. 1916, *Dowson*.

Puccinia Pruni-Persicae *Hori* in Phytopathology ii, 1912, p. 144.
Uredo stage, on leaves of *Prunus Persica*, *Dowson*.

Puccinia triticina *Eriks.* in Ann. sci. nat. sér. 8, ix, 1899, p. 270.
On wheat in all parts of the country, *Dowson*.

Aecidium Crotalariae *P. Henn.* in Engler Pflanzenwelt Ostafr. 1895, p. 52.
Nandi, 6000 ft., *Scott Elliot* 87.

Aecidium Solani-unguiculati *P. Henn.* in Bull. Herb. Boiss. i, 1893, p. 112.
On *Solanum* sp., *McDonald*.

Aecidium ugandense *Syd.* in Engl. Bot. Jahrb. xlv, 1910, p. 262.
On leaves of *Turraea* sp., Kibwezi, 3300 ft., Sept., *Scheffler* 182a.

Uredo Ciceris-arietini (*Grogn.*) *Jacz. et Boy* in Ann. Ecole Nat. Agr. Montpellier, 1894, p. 195.
Nairobi, *A. Linton* 139.

Uredo Dioscoreae *P. Henn.* in Hedwigia xxxv, 1896, p. 255.
On leaves of *Dioscorea* sp., Kyambu, *Dowson* 9.

Uredo Scheffleri *Syd.* in Engl. Bot. Jahrb. xlv, 1910, p. 262.
On leaves of *Capparis* sp., or *Maerua* sp., Kibwezi, June 1906, *Scheffler*.

According to Sydow (loc. cit.) this Uredo probably belongs to a Hemileia.

Caeoma Clematidis *Thm.* Myc. Univers. No. 539.
On leaves of *Clematis* sp., Limoru, 7000 ft., Feb., *Dummer* 1743.

USTILAGINACEAE.

Ustilago Cynodontis (*P. Henn.*) *Bref.* Unters. xii, p. 105.
On *Cynodon*, *McDonald*.

Ustilago goniospora *Massee* in Kew Bull. 1899, p. 183.
In ovaries of an undetermined *Aristida*, Ukamba, *Scott Elliot* 6491.

Ustilago heterospora *P. Henn.* in Engl. Pflanzenwelt Ostafr. 1895, p. 48.
On *Panicum maximum* Jacq., Wanga, S. Kavirondo, 4000 ft., *Lathbury*.

Sphacelotheca Sorghi (*Lk.*) *Clinton* in Journ. Myc. viii, 1902, p. 140.
On *Andropogon Sorghum*, Scott Agric. Lab. plot, 1924, *McDonald*.

Sphacelotheca Themedae *Duke* sp. nov.

Sori in ovariis evoluti, elongati, circ. 15 mm. longi, membrana pallida, apice dehiscente, circumdati. Cellulae steriles, leviter brunneae, laxe adhaerentes quoad formam valde mutabiles. Massa sporarum nigra, pulverulenta. *Sporae* globosae vel oblongae, verruculosae, leviter olivaceo-brunneae, 10–13 x 7–10 μ.

Hab. in ovaries of *Themeda triandra*, Nairobi, Kenya, 14th May 1916, *Dowson*.

Tolyposporium Penicillariae *Bref.* Unters. xii, p. 154.
On inflorescence of *Pennisetum typhoideum*, *Dowson* 3.

Sorosporium Reilianum (*Kuehm.*) *McAlp.* Smuts Austral. p. 181.
On *Sorghum caudatum* and *Zea Mays*, *McDonald*.

Cerebella Cynodontis *Syd.* in Ann. Myc. x, 1912, p. 45.
On *Digitaria* sp., Limoru, 7000 ft., Feb., *Dummer* 1740 ; on *Digitaria nitens*, 1916, *Dowson*; on *Cynodon dactylon*, *McDonald*.

Cerebella Sorghi-vulgaris *Subramaniam* in Journ. & Proc. Asiatic Soc. Bengal N.S. xvii, 1921, p. 206.
On Kaffir corn at Kabete Experimental Farm, 1923, *McDonald*.

PYRENOMYCETES.

Asterina Combreti *Syd.* in Engl. Bot. Jahrb. xlv, 1910, p. 264.
On leaves of *Combretum tavatense* Engl., Kibwezi, June, *Scheffler*.

Parodiella perisporioides *Speg.* in Anal. Soc. Cient. Argentina, ix, 1880, p. 178.
On leaves of Leguminosae, 26th Sept. 1916, *Dowson*.

Physalospora Cydoneae *Arnaud* in Ann. Ecole Nat. Agr. Montpellier xii, 1912, p. 9.
Apple canker (conidial stage, *Sphaeropsis malorum* Pk., only), *Dowson*.

Glomerella Psidii (*Del.*) *Shel.* in W. Virginia Univ. Agr. Exp. St. Bull. 104, 1906, p. 311.
On guava causing fruit scab, *McDonald*.

Xylaria allantoidea *Berk.* in Journ. Linn. Soc. x, 1869, p. 341.
On a well-decayed log, Gongoni Forest, Witu, Sept., *Maitland* 528.

Xylaria arbuscula *Sacc.* in Michelia i, 1878, p. 249.
On pods of an unknown Legume partly or entirely buried in leaf debris, Mazeras Forest, *Maitland* 570.
Spores 11–12 x 5–6 μ, rather smaller than normally.

Xylaria ianthino-velutina *Mont.* in Ann. sci. nat. sér. 2, xiii, 1840, p. 348.
Mazeras Forest, on thick woody pods of *Afzelia cuanzensis*, *Maitland*.

Xylaria nigripes (*Kl.*) *Sacc.* Syll. ix, p. 527.
On low ant-hills, Mazeras, March and April, *Maitland* 563.
The following details were given in a note by Maitland accompanying the specimens. The conidia-bearing clubs appear first while the ascigerous forms follow 10–14 days later. Normally the conidial and perfect stages are produced on separate clubs, but in some cases asci may be developed on a conidial structure. The fungus was collected from old ant-hills. No sclerotia were found, but rhizomorphic strands were traced back to the galleries of the ant-hills. These strands crumbled up on handling as if their substance and vitality had been used up by the production of the fruiting bodies.

Ustulina zonata (*Lév.*) *Sacc.* Syll. i, p. 352.
On roots of peach and pear trees growing on old forest land, causing death, *McDonald*.
This fungus is more commonly found causing a root disease of tea, coffee, rubber, on similar land.

Daldinia Eschscholtzii (*Ehrenb.*) *Rehm.* in Ann. Myc. ii, 1904, p. 175.

On partially decayed fallen trees, Gongoni Forest, Witu, *Maitland* 523.
Very common throughout Tanaland.

Daldinia concentrica *Ces. & De Not.* in Comm. Soc. Critt. It. No. 4, 1863, p. 198.
On fallen trunks near the coast, *Dowson* 175.

Hypoxylon annulatum (*Schw.*) *Mont.* in Gay, Hist. de Chile, Bot. vii, 1850, p. 445.
On an old decayed log, Gongoni Forest, Witu, Sept., *Maitland* 521.

Mycosphaerella Stephanorossiae *Duke* sp. nov.

Perithecia gregaria, hypophylla, immersa, nigra, globosa, minuta 120–140 μ diam. *Asci* aparaphysati, clavati, breviter stipitati, 57–70 x 15–23 μ. *Sporidia* 8, subfusoidea, utrinque subacuta, recta vel parum curvata, ad septum vix constricta, circ. 30 x 6 μ.

Hab. in foliis *Stephanorossiae* sp., Limoru, Kenya, Feb. 1915, *Dummer* 1749.

Engleromyces Goetzei *P. Henn.* in Engl. Bot. Jahrb. xxviii, 1900, p. 327.
Dowson 343; on Bamboo, N. Kenya, 10,000 ft., 20th July 1920, *J. Youngson*; on Bamboo, 9,500 ft., *P. Bonfield*.

According to the last-named collector, this fungus is not at all widespread and is much sought by the natives as a stomach medicine.

Nectria Rickii *Rehm.* in Hedwigia xliv, 1904, p. 2.
On bark of tree trunk, Gongoni Forest, Witu, Sept., *Maitland* 580.

Nectria striatospora *A. Zimm.* in Centralbl. f. Bact. vii, 1901, p. 105.
On dead wood, Gongoni Forest, Witu, *Maitland* 529.

According to von Höhnel and Weese (Ann. Myc. ix, 1911, p. 423) *Nectria striatospora* Zimm. is the same as *Nectria discophora* Mont.

Hypocrea brachycaulis *Duke* sp. nov.

Stroma parvum erectum, discoideo-turbinatum, brevissime stipitatum usque ad 2 mm. alt. Discus convexus circularis rugosus, pallide brunneus, politus, 2.5 mm. diam. Stipes fusco-olivaceus, supra pallidus, leviter flocculosus. *Perithecia* immersa, globosa vel ovata, circ. 210 x 180 μ ostiolis 60–80 μ longis. *Asci* aparaphysati cylindrici, 8 sporis (simulate 16 sporis) 60–75 x 3–4 μ. *Sporidia* monosticha, e duobus cellulis aequilibus mox separatis composita. Articuli sporidiorum hyalini, globosi vel oblongi, 2–2.5 μ long. diam.

On tree trunks, Gongoni Forest, Witu, Kenya, Sept., *Maitland* 536.

In form and size this species is very similar to *Hypocrea turbinata* Starb. (in Ark. f. Bot. v, 7, 1905, p. 11, fig. 7 a–c) of Brazil but differs from it in the much smaller hyaline spores.

Hypocrea brachycaulis Duke sp. nov.
a. Stroma × 2. b. Long. sect. stroma × 27.

Phyllachora graminis (*Pers.*) *Fuck.* Symb. Myc. p. 216.
Mt. Kenya, *Gregory*.

Phyllachora Tricholaenae *P. Henn.* in Engl. Bot. Jahrb. xxiii, 1897, p. 541.
On leaves of *Tricholaena rosea* Nees, Embu District, 3,300 ft., 1925, *F. B. Butler* 102.

Corynelia uberata *Fr.* Syst. Myc. ii, p. 535.
On leaves of Podocarpus, 26th Sept. 1916, *Dowson*.

Phycomycetes.

Cystopus candidus *de Bary* in Ann. sci. nat. sér., 4, xx, 1863, pp. 31, 130.
On seed of *Diplotaxis* sp., *Dowson*.

Fungi Imperfecti.

Phoma Euphorbiae *Sacc.* Mich. ii, p. 339.
On stem of Tragia, Mbuyuni, *Scott Elliot* 6200.

Phomopsis Lobeliae (*B. & Br.*) *Petch* in Ann. Bot. Gard. Perad. vii, 1919, p. 36.
On Tree Lobelia, Limoru, 7,000 ft., Feb., *Dummer* 1750.

Botryodiplodia Theobromae *Pat.* in Bull. Soc. Myc. Fr. viii, 1892, p. 136.
On roots of diseased Apple trees, Thika, 1924, *McDonald*.

Septoria Petroselini *Desm.* var. **Apii** *Br. & Cav.* Fungh. Parass. No. 144, 1890.
Causing late Blight of Celery, *McDonald*.

Septoria Lycopersici *Speg.* F. Argent. iv, No. 289.
Leaf spot of tomatoes, *McDonald*.

Asterostomella africana *Syd.* in Engl. Bot. Jahrb. xlv, 1910, p. 264.
On leaves of *Thylachium africanum* Lour., Kibwezi, June 1906, *Scheffler*.
Probably connected with an *Asterina* (Engl. loc. cit.).

Leptostromella septorioides *Sacc. & Roum.* Mich. ii, p. 632.
On leaves of *Eragrostis* sp., Embu District, 6,000 ft., *F. B. Butler* 154.

Gloeosporium rufomaculans (*Berk.*) *Thum.* Fungi pomic. p. 61.
Bitter rot of Quince, *McDonald*.

Gloeosporium coffeanum *Delacr.* Bull. Soc. Myc. Fr. xiii, 1897, p. 110.
Leaf blotch of coffee, *Dowson*.

Colletotrichum Lindemuthianum (*Sacc. & Magn.*) *Brios. & Cav.* Fungh. Parass. No. 50.
Nairobi, *A. Linton* 142.

Colletotrichum Agaves *Cav.* in Hedwigia xxxi, 1892, p. 315.
On Sisal Hemp (*Agave rigida* var. *sisalana*), ring spot disease recorded only in very wet rainy seasons, *Dowson*.

Colletotrichum coffeanum *Noack* in Zeitschr. f. Pflanzenkr. xi, 1901, p. 202.
On coffee berries, *McDonald*.
This fungus has now been definitely proved to be the causal organism of the coffee berry disease. It seems, however, to be a different strain from that which commonly attacks the twigs and leaves of coffee bushes in Kenya but which does little harm. (McDonald in Trop. Agric. lxiv, 1925, p. 163, reprinted from Farmers' Journ. vii, p. 1).

Polyspora Lini *Lafferty* in Sc. Proc. R. Dublin Soc. N.S. xvi, 1921, p. 258.
On flax crops—Browning's Disease, *McDonald*.

Septogloeum Mori (*Lév.*) *Brios. & Cav.* Fungh. Parass. No. 21, 1888.
Causing a leaf spot of Mulberry, *Dowson*.

Pestalozzia uvicola *Speg.* in Thum. Pilze des Weinstockes, p. 13.
On Grape vines, *Dowson*.

Pestalozzia palmarum *Cke.* in Grev. iv, 1876, p. 115.
On the leaves and nuts of Coconut palm, *McDonald*.

Pestalozzia Theae *Sawada* in Spec. Rep. Agr. Exp. Sta. Formosa 1915, No. 11, p. 113.
Grey blight of tea, *McDonald*.

Piricularia grisea (*Cke.*) *Sacc.* Mich. ii, p. 148.
On Rice—Rice Blast, *McDonald.*

Cladosporium herbarum (*Pers.*) *Link.* Obs. Myc. ii, p. 37.
On leaves of *Cluytia richardiana* Muell. Arg., Ukamba, *Scott Elliot* 2334; on leaves and stems of unnamed host, 7,000 ft., Limoru, Feb., *Dummer* 1741.

Cercospora coffeicola *B. & Cke.* in Grevillea ix, 1881, p. 99.
Leaf spot disease of Coffee, *Dowson*; *McDonald.*

Cercospora Nicotianae *E. & E.* in Proc. Acad. Nat. Sc. Philad. 1893, p. 170.
Leaf spot of Tobacco, 1924, *McDonald.*

Helminthosporium turcicum *Pass.* in Bull. Comiz. Agr. Parm. Ott. No. 10, 1876.
Maize leaf blight, *McDonald.*

Fusarium heterosporum *Nees* in Nov. Act. Acad. Caes. Leop. ix, 1818, p. 235.
On *Setaria* and *Cynodon*, Njoro, Sept., *Dowson* 339, 340.

Fusarium Limonis *Briozi* in Atti Staz. Chim. Agrar. Roma, 1878.
On Citrus trees, *Dowson.*

The disease known as "Foot rot" of Citrus trees is usually ascribed to this fungus, but Dowson thinks that it is more probably due to bacterial attacks in the first place, and the *Fusarium* is secondary. Whatever the initial cause, the disease is the most serious of those attacking the Citrus tree in Kenya (Dowson in Ann. App. Biol. viii. 1921, p. 83).

Fusarium Zeae (*West.*) *Sacc.* Syll. iv, p. 713.
On leaves of *Zea Mays*, Gosha, Jubaland, *H. Powell* 10.

Fusarium culmorum (*W. Sm.*) *Sacc.* Syll. xi, p. 651.
"Red Mould" of wheat, only a few isolated cases, Kericho, *McDonald.*

Fusarium Lini *Boll.* in Bull. N. Dakota Agr. Exp. St. No. 50, 1901, p. 37.
On Flax causing Wilt disease, Kericho, *Dowson*; *McDonald.*

Sterile Mycelia.

Rhizoctonia lamellifera *Small* in Trans. Brit. Myc. Soc. ix, 1924, p. 165.
On roots of Kenya coffee, forming disease, *McDonald.*

Schizomycetes.

Bacterium tumifaciens *Smith & Townsend* in Science N.S. xxv, 1907, p. 672.
Crown Gall of Almond, *McDonald.*

PLATE VIII.

Cornus Kousa.

[*To face page* 320

PLATE IX.

Aesculus indica.

To face page 321]

XXXIX. GARDEN NOTES ON NEW OR RARE TREES OR SHRUBS. W. J. Bean.

Cornus Kousa *Buerg.* var. **chinensis** [Cornaceae].

In the *Kew Bulletin* for 1915, page 177, an illustrated article on *Cornus Nuttallii* and its allies appeared. Besides a picture of a wonderful specimen of *C. Nuttallii* in full blossom in British Columbia, an illustration of a flowering spray of *C. Kousa* was given. This represents the form commonly cultivated which, many years ago, was introduced from Japan. In 1910 two small trees were obtained from the Arnold Arboretum which had been raised from seeds sent there by Mr. E. H. Wilson. These are now 10 feet high and have flowered very beautifully during the last six or eight years. They represent a much finer form than the original one obtained from Japan in having considerably larger bracts. There are in fact few shrubs or small trees so beautiful flowering in June and July.

Mr. E. H. Wilson, who found it to be abundant in Western Hupeh to the north and south of Ichang at 4000 to 7000 feet altitude, describes it as a bush, or flat-topped small tree, up to 30 feet high. Its leaves are deciduous, ovate to suborbicular and up to 4 inches long. The floral bracts, four in number, are narrowly ovate, each tapering to an acuminate point, 2 to $3\frac{1}{2}$ inches long, $\frac{3}{4}$ to $1\frac{1}{4}$ inches wide; at first green they gradually lose this colour as they increase in size until they are finally a slightly creamy white. They stand erect from the horizontal branches so close that in places they make an unbroken sheet of blossom.

This cornel is evidently very hardy, as it thrives splendidly in the Arnold Arboretum, where the winter cold is much more severe than ours. In a recent Bulletin of that institution Prof. Sargent writes, "it is doubtful if a more beautiful plant has ever come from Eastern Asia to the Eastern United States."

Aesculus indica *Colebr.* [Sapindaceae].

It may safely be said that no large flowering tree has been so undeservedly neglected in English gardens as the Indian horse chestnut, *Aesculus indica* Colebrooke. It seems first to have been introduced in 1851, by means of seeds sent from India by Sir Charles J. F. Bunbury to Barton Place in Suffolk. A tree raised from this sending was measured by the late Mr. Elwes at Barton in 1904, and it was then 66 feet high, its trunk 7 feet 2 inches in girth. This tree appears to have been the finest of its kind ever grown in this country and, judging by an illustration of it that appeared in the Gardeners' Chronicle for Sept. 17th, 1904, it was of shapely form and luxuriant in growth at that time, with very much the contours of the common horse chestnut. We learn, however, from Mr. R. C. Notcutt, of Woodbridge, that when the old house at Barton was burnt down a few years later, the estate was sold and all the timber, including the

Aesculus indica, was cut down. When Mr. Notcutt saw the stump last autumn it was sending up shoots all round the sides.

Of the trees existing at Kew the oldest was received in 1887, from Mr. Lavallée, whose Arboretum at Segrez in France was then one of the most famous in Europe. In 1889 seeds were received from Saharunpore from which plants were raised, and in 1890 Lord Ducie sent a plant. The best tree at Kew is the one from Mr. Lavallée ; this is now 27 feet high and 3 feet 6 inches in girth of trunk. Considering its age it ought to have been considerably larger, but it was, unfortunately, planted in some of the poorest and most arid soil in the place. It is, nevertheless, now growing well and flowers freely every year ; it may indeed, safely be described as the handsomest of large trees at Kew blossoming in late June.

It is curious considering the close relationship that has existed since 1841 between Kew and India, that it was not introduced earlier. But the people over there never seemed to realize the importance of sending the seeds as soon as they were ripe and packing them in slightly moist material. It is fatal to seeds of this (as well as of other horse chestnuts) to keep them dry for long. However, there need now be no concern about the establishment of this noble tree in the British Isles. The specimen at Kew just described produces almost every year a crop of seeds, sometimes very good crops. These as well as young plants have been freely distributed both to private and trade establishments in recent years. There seems to be no reason why the Indian horse chestnut should not, in a few years, be one of the most cherished of garden trees, or why (in the southern half of England at any rate) avenues should not be formed of it.

Perhaps its greatest recommendation is that it flowers four or five weeks (in the present year six weeks) later than the common one, by which time the great flowering period of hardy trees and shrubs has waned. Its foliage is handsomer, the individual leaflets are larger and of a rich glossy green, and its flower panicles are finer, being often 12 inches high and 4 to 5 inches wide. On young, very vigorous trees they have measured 16 inches high. The individual flower is about $1\frac{1}{4}$ inches wide with four white petals, the upper pair blotched with yellow and red at the base, the lower and larger pair suffused with pink. The whole tree, in foliage, panicle and individual flower, has greater distinction than the common species. It belongs to the *Pavia* section of the genus *Aesculus*, the fruits, although rather rough-surfaced, having no spines. The nuts are similar in colouring to those of common horse chestnut but usually smaller.

The tree attains enormous dimensions in North India, reaching 150 feet in height with a trunk 40 feet in girth. It occurs at elevations of 4,000 to 10,000 feet in the north-west Himalayas from the Indus to Nepal and has also been found in Afghanistan. It is very easily cultivated, its chief requirements being a rich moist loam. At

Kew it succeeds in full sunshine. Owing to its rarity until recent years no information appears to be available as to its suitability for the colder parts of the north of Britain, but it is not too rash perhaps to assume that it will succeed where the common species does. It is at any rate well worth trying there.

XL.—ANGRAECOID ORCHIDS. K. W. Braid.

Few sub-groups of African Orchids are more bewildering than this section of the sub-tribe *Sarcantheae*. A superficial similarity of floral structures is associated with the greatest diversity of habit, size and floral modifications, and specimens discovered during the last few decades have rendered the old conceptions of the genera untenable.

Bentham and Hooker in the Genera Plantarum recognised 32 genera as belonging to the sub-tribe *Sarcantheae*, and of these four genera occurred in Africa. Rolfe* following the lines suggested by Reichenbach f. and Bentham separated *Saccolabium* (*Acampe*) from these four genera on account of the single slender stipe and gland, the short spur and wide lobes of the lip which are erect, distinct and broadly rounded. The three remaining genera *Angraecum*, *Listrostachys* and *Mystacidium* were regarded collectively as forming the Angraecoid orchids. Rolfe divided them on the structure of their pollinia, *Angraecum* possessing a single stipe and one gland and a different lip from *Saccolabium*, *Listrostachys* possessing two stipes to the pollinia but with both united to a single gland, and *Mystacidium* with each pollinium possessing its own stipe and gland. Round these arbitrary divisions during the last 25 years a heterogeneous collection of Angraecoids has been assembled. Most of them certainly have the structure of the pollinia in common, but, as many botanists did not adhere to this classification, the species do not even agree in this respect. Indeed, the degree of boiling to which dried flowers were subjected not infrequently led to confusion, since an apparently single stipe or gland might divide on further treatment, for, as Schlechter† has pointed out, two separate stipes are often held together by a fine membrane.

In 1907 Finet‡ published a valuable paper in which he divided the Angraecoids into two main sections according to whether the rostellum was produced into a point or indented. He raised the

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* Flora of Tropical Africa, vol. 7, p. 15.

† Schlechter, R. Versuch einer natürlichen Neuordnung der afrikanischen angraekoiden Orchidaceen in Beihefte Bot. Centralb. Bd. xxxvi, 2, 1918 (pp. 62–181) p. 63.

‡ Finet, A. Classification et enumération des Orchidées africaines de la tribu des Sarcanthères d'après les collections du Muséum de Paris, in Bull. Soc. Bot. France liv, Mém. ix, 1907. (12 plates.)

number of genera to eleven and published some excellent plates which showed, among other things, what a heterogeneous collection of floral structures was to be found within this sub-tribe.

Dr. Schlechter studied the living Angraecoid orchids in Africa and other members of the sub-tribe in New Guinea and elsewhere. As a result he came to the conclusion that all the Angraecoid orchids should be placed under the single genus *Angraecum*, or that many new genera should be created. He chose the latter course. He could recognise *Mystacidium* in the restricted sense defined by Bolus, and he could appreciate the importance of Finet's classification, though in his view the genera were still far too heterogeneous. He accordingly increased the genera to 32, but on the whole they are clearly defined and quite natural.

Although Kew unfortunately does not possess specimens of all these genera, I have experienced no difficulty, where adequate material is present, in assigning any plant to its proper genus often without even dissecting the flowers. This is in striking contrast to previous experience with other keys, and I consider Schlechter's arrangement to be of the greatest value both to the grower, the field-worker in Africa and to the herbarium botanist.

The arrangement may be criticised because of the five monotypic genera. The advisability of making many genera when it was possible to sub-divide *Angraecum* itself is a matter of opinion. *Angraecum* with the 80 odd species recognised by Schlechter is not yet split up as fully as it probably will be, and the fact remains that hitherto the undoubtedly closely related species have not been brought together.

It would have been interesting had time permitted to have examined the structure of the rostellum and clinandrium of all the aphyllous species, for I feel that leaflessness is a feature which, being so apparent, is apt to receive more attention and carry more weight than is always justified. I am doubtful of its value as a character on which to base a genus. The definition also of *Cephalangraecum* in the Key hardly seems satisfactory, for no mention is there made of its deeply cleft although elongated rostellum.

Notwithstanding this, however, Dr. Schlechter's contribution is so valuable that a translation of his key to the genera is here appended.

In the paper itself Schlechter begins with a general discussion of the Angraecoid orchids, then gives his key and finally deals with each genus in turn. The species are enumerated alphabetically, and their localities, synonyms, and references are cited. Unfortunately there is no index co-ordinating the synonyms and specific names used with the new genera.

I have to acknowledge my thanks to the late Dr. Schlechter for his kindness in elucidating one or two portions of the key and for permission to publish the translation, and for calling attention to the fact that *Bathiea* is now *Neobathiea*.

1st Group.—Genera with Distinctly Elongated, if also at times Short Foot to Column.

Rostellum elongated; plate of lip completely united to spur:
Spur with narrow opening; plate of lip forming an angle with the opening of spur .....1. *Rhipidoglossum* Schltr. n. gen.
Spur with broad opening; plate of lip gradually merging into the spur:
Stem not distinctly elongated, leaves equitant (Iris-like) sword-like, pointed, flowers in shortened almost umbel-like bunches .....2. *Podangis* Schltr. n. gen.
Stems elongated with flat leaves, flowers in distinctly elongated bunches .....3. *Calyptrochilum* Kränzl.
Rostellum surrounded by a deeply jagged edge, plate of lip distinctly jointed on to the front of the free spur-opening .....4. *Aeranthes* Lindl.

2nd Group.—Genera in which the Column Possesses no Extended Foot in Front.

1. Rostellum Distinctly Elongated.

Lip distinctly and broadly clawed with a perpendicular narrow spur-opening at some distance from the base .....5. *Listrostachys* Rchb. f.
Lip not clawed, spur-opening directly at base of the lip close in front of the column:
Plants leafless; gynostegium generally ascending prominently behind the clinandrium, rostellum stretching downwards slantwise .....6. *Gussonea* A. Rich.
Plants leafy; gynostegium not distinctly ascending behind the clinandrium:
Plate of lip with distinct growths, callosities or numerous tubercles:
Spur with a narrow mouth placed sharply against the plate of lip:
Plate of lip with heart-shaped callus, spur standing out in front of the point with a geniculate bend .....7. *Lemurorchis* Kränzl.
Plate of lip with a hump or horn-like outgrowth in front of the spur-opening, spur bent downwards .....8. *Diaphananthe* Schltr.
Spur with wide opening, plate of lip with numerous small scattered tubercles .....9. *Beclardia* A. Rich.
Plate of lip smooth, without distinct growths, swellings or tubercles:
Plate of lip not or only indistinctly lobed:
Spur with narrow opening and placed sharply against the plate of lip:

Flowers small with a 2-flowered, very short, almost sessile inflorescence .....10. *Phormangis* Schltr. n. gen.
Flowers small, seldom 5 mm. in diameter, often with short cylindrical spurs, occasionally swollen towards the point but never filamentous; flowers in elongated bunches:
Rostellum fleshy, plate of lip slightly fiddle-shaped, spur bent gently backwards
.....11. *Sarcorhynchus* Schltr. n. gen.
Rostellum thin, not fleshy, plate of lip oval to broadly-oval, seldom lingulate (tongue-shaped):
Leaves equitant, sword-shaped; column of medium length, somewhat narrowed towards the top; spur bent forwards, rostellum ascending
.....12. *Bolusiella* Schltr. n. gen.
Leaves flat, column very short and uniformly thick, spur almost parallel with ovary; rostellum short, directed slantwise downwards
.....13. *Chamaeangis* Schltr. n. gen.
Flowers medium or large, about 1 cm. or more in diameter, spur reduced towards the point, generally threadlike:
Column short or only of moderate length, usually much shorter than half the length of the sepals, always flattened in front, in the under-part only semi-cylindrical:
Plate of lip at edge irregular, almost serrate, indistinctly 3-lobed, *i.e.*, with a long point standing out more sharply than usual
.....14. *Leptocentrum* Schltr.
Plate of lip perfectly entire, never indistinctly 3-lobed, often stumpy, seldom pointed
.....15. *Aerangis* Rchb. f.
Column strikingly slender and long, about 2·5 cm. long, in under part almost cylindrical
.....16. *Barombia* Schltr.
Spur with wide opening, plate of lip passing quite gradually into the spur:
Flowers in elongated bunches:
Rostellum deeply 3-fid; the side segments often finely papillose or very shortly ciliated
.....17. *Mystacidium* Lindl.
Rostellum undivided or bifid, always quite smooth (bare):
Stem always distinctly elongated, flowers somewhat firm in consistency:
Sepals, petals, and plate of lip all similar, more or less drawn out; spur reduced uniformly towards the point .....18. *Cyrtorchis* Schltr.

Sepals and petals stumpy, lip plate scarcely existent, only recognised as the boundary of the very widely opened spur; spur point vesicular .....19. *Solenangis* Schltr. n. gen.

Stems very much reduced, flowers fragile, spur broadly funnel-shaped with point doubled back .....20. *Eurychone* Schltr. n. gen.

Flowers in round heads [*Rostellum deeply 2-cleft although elongated, K. W. B.*] .....21. *Cephalangraecum* Schltr. n. gen.

Plate of lip distinctly 3-lobed or 3-partite (Occasionally, in the most simple tridactyle kinds, a side lobe is reduced to a little tooth on the edge of the lip):

Spur with wide opening, flowers in shortened, almost head-like, thickly flowered spikes .....22. *Ancistrorhynchus* Finet.

Spur with narrow opening:

Plants stemless or almost stemless, and with long and lanky-stalked inflorescence:

Side lobes of the labellum undivided, lip flat at base .....23. *Angraecopsis* Kränzl.

Side lobes of labellum deeply multi-cleft, lip in front of the spur-entrance with spherical shaped outgrowth .....24. *Crossangis* Schltr. n. gen.

Plants always with a distinctly elongated stem, inflorescences short and few-flowered or many flowered in crowded one-sided cluster covered with flowers almost to the base .....25. *Tridactyle* Schltr.

2. Rostellum Deeply Indented.

Lip perfectly spurless and without sack-like formation at the base .....26. *Bonniera* Cordem.

Lip with distinct sack or spur formation:

Lip united with the spur firmly and without articulation:

Lip undivided and pointed, more seldom shortly 3-lobed in front, and never distinctly 4-lobed, with anterior lobes large:

Lip contracted at the base, completely free from the column, mostly lanceolate-rhomboid, spur with narrow opening .....27. *Jumellea* Schltr.

Lip surrounding the column at the base, mostly mussel-shaped, boat-shaped, or horn-shaped with widened spur opening:

Lip surrounding the column only at the base, always open above, almost always undivided, or most rarely with short anterior lobes in front; usually mussel or boat-shaped .....28. *Angraecum* Bory.

Lip enveloping the whole column as in a horn, in front 3-lobed with two round, short side lobes and long linear pointed anterior lobes .....29. *Oeoniella* Schltr. n. gen.

Lip 4-lobed with two smaller posterior lobes lightly surrounding the column and much larger anterior lobes, more or less distinctly spread out like a fan:

Petals not clawed and not lobed

.....30. *Oeonia* Lindl.

Petals long with narrow claws and distinctly lobed-plates

.....31. *Cryptopus* Lindl.

Plate of lip distinctly jointed in front to the free spur-opening. Plate flat (shallow) deeply 3-lobed

.....32. *Neobathiea* Schltr. n. gen.

THE SECOND COLUMN GIVES THE MORE IMPORTANT NAME CHANGES ACCEPTED BY SCHLECHTER IN HIS REVISION OF THE AFRICAN ANGRAECOID ORCHIDS.

Aerangis Kotschyi Rchb. f. = *Aerangis Kotschyana.*
Aeranthes brachycentron Rgl. = *Aeranthes grandiflora* Ldl.
,, Perrieri Schltr. = *Neobathiea Perrieri.*
,, sesquipedalis Lindl. = *Angraecum sesquipedale* Thou.
,, vespertilis Cogn. = *Aeranthes ramosa* Cogn.
Aeranthus arachnanthus Rchb. f. = *Jumellea arachnantha.*
,, brachystachya Boyer = *Beclardia brachystachya* A. Rich.
,, calceolus S. Moore = *Angraecum calceolus* Thou.
,, comorensis Rchb. f. = *Jumellea comorensis.*
,, Curnowianus Rchb. f. = *Jumellea Curnowiana.*
,, Deistelianus Kränzl. = *Tridactyle tridactylites.*
,, distichus Rchb. f. = *Angraecum imbricatum.*
,, Englerianus Kränzl. = *Angraecum Englerianum.*
,, erythropollinius Rchb. f. = *Rhipidoglossum xanthopollinium.*
,, expansus S. Moore = *Angraecum expansum* Thou.
,, filicornis Rchb. f. = *Mystacidium capense.*
,, fragrans Rchb. f. = *Jumellea fragrans.*
,, Gerrardi Rchb. f. = *Rhipidoglossum Gerrardi.*
,, gladiifolius Rchb. f. = *Angraecum mauritianum* Frapp.
,, gladiator Rchb. f. = *Jumellea gladiator.*
,, gracilis Rchb. f. = *Mystacidium gracile* Harv.
,, Gravenreuthii Kränzl. = *Aerangis Gravenreuthii.*
,, Guyonianus Rchb. f. = *Gussonea globulosa* Ridl.
,, Leonii Rchb. f. = *Angraecum Leonii* Veitch.
,, macrostachyus Rchb. f. = *Beclardia macrostachys* A. Rich.
,, muscicola Rchb. f. = *Aerangis muscicola.*
,, pectinatus Rchb. f. = *Angraecum pectinatum* Thou.
,, pusillus Rchb. f. = *Mystacidium pusillum* Harv.
,, rutilus Rchb. f. = *Rhipidoglossum rutilum.*
,, sesquipedalis Rchb. f. = *Angraecum sesquipedale* Thou.
,, Thouarsii S. Moore = *Angraecum filicornu* Thou.
,, trifurcus Rchb. f. = *Angraecopsis trifurca.*
,, volucris Rchb. f. = *Oeonia volucris* Thou.
,, xanthopollinius Rchb. f. = *Rhipidoglossum xanthopollinium.*
Aerides macrostachyon Sprgl. = *Beclardia macrostachys* A. Rich.
Aerobion citratum Sprgl. = *Aerangis citrata.*
,, crassum Sprgl. = *Angraecum crassum* Thou.
,, cucullatum Sprgl. = *Angraecum cucullatum* Thou.
,, expansum Sprgl. = *Angraecum expansum.*
,, filicornu Sprgl. = *Angraecum filicornu* Thou.
,, fragrans Sprgl. = *Jumellea fragrans.*
,, gladiifolium Sprgl. = *Angraecum mauritianum* Frapp.

Aerobion implicatum Sprgl. = *Angraecum implicatum* Thou.
,, inapertum Sprgl. = *Angraecum inapertum* Thou.
,, multiflorum Sprgl. = *Angraecum multiflorum* Thou.
,, palmiforme Sprgl. = *Angraecum palmiforme* Thou.
,, rectum Sprgl. = *Jumellea recta.*
,, recurvum Sprgl. = *Jumellea recurva.*
,, striatum Sprgl. = *Angraecum striatum* Thou.
,, superbum Sprgl. = *Angraecum superbum* Thou.
Angorchis biloba O. Ktze. = *Aerangis biloba.*
,, Brongniartiana O. Ktze. = *Angraecum Brongniartianum* Rchb. f.
,, citrata O. Ktze. = *Aerangis citrata.*
,, clavigera O. Ktze. = *Angraecum clavigerum* Ridl.
,, conchifera O. Ktze. = *Angraecum conchiferum* Ldl.
,, crassa O. Ktze. = *Angraecum crassum* Thou.
,, cryptodon O. Ktze. = *Aerangis cryptodon.*
,, cucullata O. Ktze. = *Angraecum cucullatum* Thou.
,, eburnea O. Ktze. = *Angraecum eburneum* Bory.
,, Ellisii O. Ktze. = *Aerangis Ellisii.*
,, fastuosa O. Ktze. = *Aerangis fastuosa.*
,, Fragrangis O. Ktze. = *Angraecum cucullatum* Thou.
,, gladiifolia O. Ktze. = *Angraecum mauritianum* Frapp.
,, hyaloides O. Ktze. = *Aerangis hologlottis.*
,, implicata O. Ktze. = *Angraecum implicatum* Thou.
,, infundibularis O. Ktze. = *Angraecum infundibulare* Ldl.
,, modesta O. Ktze. = *Aerangis modesta.*
,, palmata O. Ktze. = *Angraecum palmiforme* Thou.
,, parvula O. Ktze. = *Angraecum parvulum* Ayes.
,, pusilla O. Ktze. = *Angraecum pusillum* Ldl.
,, ramosa O. Ktze. = *Angraecum ramosum* Thou.
,, recurva O. Ktze. = *Jumellea recurva.*
,, rostrata O. Ktze. = *Angraecum rostratum* Ridl.
,, saccifera O. Ktze. = *Angraecum sacciferum* Ldl.
,, Scottiana O. Ktze. = *Angraecum Scottianum* Rchb. f.
,, sesquipedalis O. Ktze. = *Angraecum sesquipedale* Thou.
,, spathulata O. Ktze. = *Jumellea Rutenbergiana.*
,, striata O. Ktze. = *Angraecum striatum* Thou.
,, superba O. Ktze. = *Angraecum superbum* Thou.
,, vesicata O. Ktze. = *Chamaeangis vesicata.*
Angraecum acutoemarginatum De Wild. = *Tridactyle acutoemarginata.*
,, acutum Ridl. = *Diaphananthe acuta.*
,, albidorubrum De Wild. = *Aerangis albidorubra.*
,, Althoffii Kränzl. = *Diaphananthe pellucida.*
,, Andersonii Rolfe = *Gussonea micropetala.*
,, angustifolium De Wild. = *Cyrtorchis angustifolia.*
,, antennatum Kränzl. = *Cyrtorchis Monteiroae.*
,, aphyllum Thou. = *Gussonea aphylla* A. Rich.
,, apiculatum Hook. = *Aerangis biloba.*
,, appendiculatum Boiv. = *Bonniera appendiculata* Cordem.
,, arachnopus Rchb. f. = *Aerangis arachnopus.*
,, arcuatum Ldl. = *Cyrtorchis arcuata.*
,, armeniacum Ldl. = *Tridactyle armeniaca.*
,, Arnoldianum De Wild. = *Angraecum Eichlerianum* Kränzl.
,, articulatum Schltr. = *Aerangis articulata.*
,, Aschersoni Kränzl. = *Cyrtorchis Aschersoni.*
,, ashantense Ldl. = *Diaphananthe ashantense.*
,, avicularium Rchb. f. = *Aerangis avicularia.*
,, Batesii Rolfe = *Aerangis Batesii.*
,, Batesii Schltr. = *Aerangis mixta.*
,, bicaudatum Ldl. = *Tridactyle bicaudata.*
,, Bieleri De Wild. = *Gussonea Bieleri.*

Angraecum biloboides De Wild. = *Aerangis biloboides.*
„ bilobum Ldl. = *Aerangis biloba.*
„ bistortum Rolfe = *Cyrtorchis bistorta.*
„ bokoyense De Wild. = *Calyptrochilum bokoyense.*
„ Bolusii Rolfe = *Tridactyle Bolusii.*
„ brachycarpum Rchb. f. = *Aerangis brachycarpa* Dur. et Schinz.
„ brunneo-maculatum Rendle = *Ancistrorhynchus brunneo-maculatus.*
„ Buchholzianum Kränzl. = *Cyrtorchis Buchholziana.*
„ Bueae Schltr. = *Diaphananthe Bueae.*
„ caespitosum Rolfe = *Gussonea caespitosa.*
„ caffrum Bol. = *Mystacidium caffrum* Bol.
„ calanthum Schltr. = *Aerangis calantha.*
„ capense Ldl. = *Mystacidium capense.*
„ capitatum Ldl. = *Cephalangraecum capitatum.*
„ caudatum Ldl. = *Leptocentrum caudatum.*
„ cephalotes Kränzl. = *Cephalangraecum Metteniae.*
„ Chailluanum Hook. f. = *Cyrtorchis Chailluana.*
„ Chilochistae Rchb. f. = *Gussonea Chilochistae.*
„ citratum Thou. = *Aerangis citrata.*
„ clandestinum Ldl. = *Ancistrorhynchus clandestinum.*
„ clandestinum Ldl. var. stenophyllum Schltr. = *Ancistrorhynchus stenophyllum.*
„ clavatum Rolfe = *Solenangis clavata.*
„ comorense Finet = *Jumellea comorense.*
„ confusum Schltr. = *Jumellea confusa.*
„ conicum Schltr. = *Gussonea conica.*
„ cordatiglandulum De Wild. = *Aerangis cordatiglandula.*
„ cornutum Rchb. f. = *Gussonea cornuta* Ridl.
„ crinale De Wild. = *Gussonea crinalis.*
„ cryptodon Rchb. f. = *Aerangis cryptodon.*
„ cyclochilum Schltr. = *Gussonea cyclochila.*
„ dactyloceras Schltr. = *Podangis dactyloceras.*
„ deflexicalcaratum De Wild. = *Gussonea deflexicalcarata.*
„ defoliatum Schltr. = *Gussonea defoliata.*
„ descendens Rchb. f. = *Aerangis articulata.*
„ distichum Ldl. = *Angraecum imbricatum.*
„ divitiflorum Schltr. = *Chamaeangis divitiflora.*
„ dolichorrhizum Schltr. = *Gussonea dolichorrhiza.*
„ ealense De Wild. = *Cyrtorchis ealensis.*
„ elatum Thou. = *Cryptopus elatus* Ldl.
„ elegans Rolfe = *Aerangis Henriquesiana.*
„ Ellisii Rchb. f. = *Aerangis Ellisii.*
„ Englerianum Kränzl. = *Aerangis Engleriana.*
„ erecto-calcaratum De Wild. = *Tridactyle erecto-calcarata.*
„ exile Cordem. = *Jumellea exilis.*
„ fastuosum Rchb. f. = *Aerangis fastuosa.*
„ filicornuides De Wild. = *Jumellea filicornuides.*
„ filifolium Schltr. = *Tridactyle filifolia.*
„ filipes Schltr. = *Aerangis filipes.*
„ fimbriatum Rendle = *Tridactyle fimbriata.*
„ fimbripetalum De Wild. = *Tridactyle fimbripetala.*
„ flabellifolium Rolfe = *Aerangis flabellifolia* Rchb. f.
„ Flanagani Bol. = *Mystacidium Flanagani* Bol.
„ flexuosum Rolfe = *Aerangis flexuosa.*
„ fragrans Thou. = *Jumellea fragrans.*
„ Frommianum Kränzl. = *Tridactyle Frommiana.*
„ fuscatum Rchb. f. = *Aerangis fuscata.*
„ Galeandrae Rchb. f. = *Eurychone Galeandrae.*
„ Gentilii De Wild. = *Tridactyle Gentilii.*

Angraecum Germinyanum Hook. = *Angraecum ramosum* Thou.
,, Gerrardi Bol. = *Rhipidoglossum Gerrardi.*
,, Gilpinae S. Moore = *Gussonea Gilpinae* Ridl.
,, gladiifolium Thou. = *Angraecum mauritianum* Frapp.
,, globulosum Hochst. = *Gussonea globulosa* Ridl.
,, glomeratum Ridl. = *Cephalangraecum glomeratum.*
,, Goetzeanum Kränzl. = *Tridactyle Goetzeana.*
,, gracile Thou. = *Chamaeangis gracilis.*
,, gracillimum Kränzl. = *Barombia gracillima.*
,, Grantii Batem. = *Aerangis Grantii.*
,, Guyonianum Rchb. f. = *Gussonea globulosa* Ridl.
,, Henriquesianum Rdl. = *Cyrtorchis Henriquesiana.*
,, Henriquesianum Rolfe = *Aerangis Henriquesiana.*
,, hologlottis Schltr. = *Aerangis hologlottis.*
,, Humblotii Rchb. f. = *Angraecum Leonii* Veitch
,, hyaloides Rchb. f. = *Aerangis hyaloides.*
,, ichneumoneum Ldl. = *Chamaeangis ichneumonea.*
,, imbricatum Ldl. = *Calyptrochilum emarginatum.*
,, inaequilongum De Wild. = *Tridactyle inaequilonga.*
,, injoloense De Wild. = *Cyrtorchis injoloensis.*
,, ischnopus Schltr. = *Angraecopsis ischnopus.*
,, Jumelleanum Schltr. = *Jumellea Henryi.*
,, kamerunense Schltr. = *Diaphananthe kamerunensis.*
,, Kindtianum De Wild. = *Tridactyle Kindtiana.*
,, Kirkii Rolfe = *Aerangis Kirkii.*
,, Koehleri Schltr. = *Gussonea Koehleri.*
,, konduense De Wild. = *Gussonea konduensis.*
,, Kotschyi Rchb. f. = *Aerangis Kotschyana.*
,, lagosense Rolfe = *Tridactyle lagosensis.*
,, latibracteatum De Wild. = *Cyrtorchis latibracteata.*
,, Laurentii De Wild. = *Aerangis Laurentii.*
,, Ledermannianum Kränzl. = *Diaphananthe vandiformis.*
,, lepidotum Rchb. f. = *Tridactyle lepidota.*
,, lignosum Schltr. = *Jumellea lignosa.*
,, liliodorum Frapp. = *Jumellea liliodora.*
,, Lujai De Wild. = *Eurychone Galeandrae.*
,, luteo-album Kränzl. = *Aerangis luteo-alba.*
,, macrocentrum Schltr. = *Aerangis macrocentra.*
,, macrorhynchium Schltr. = *Gussonea macrorhynchia.*
,, majale Schltr. = *Jumellea majalis.*
,, malangeanum Kränzl. = *Calyptrochilum malangeanum.*
,, marsupio-calcaratum Kränzl. = *Calyptrochilum marsupio-calcaratum.*
,, Maudae Bol. = *Bolusiella Maudae.*
,, megalorhizum Rchb. f. = *Gussonea megalorhiza.*
,, micropetalum Schltr. = *Gussonea micropetala.*
,, moandense De Wild. = *Aerangis moandensis.*
,, modestum Hook. = *Aerangis modesta.*
,, Moloneyi Rolfe = *Calyptrochilum Moloneyi.*
,, mombasense Rolfe = *Calyptrochilum mombasense.*
,, monodon Ldl. = *Diaphananthe monodon.*
,, Muansae Kränzl. = *Diaphananthe Muansae.*
,, multinominatum Rendle = *Angraecum clavatum.*
,, muriculatum Rendle = *Tridactyle muriculata.*
,, Mystacidii Rchb. f. = *Aerangis Mustacidii.*
,, nalaense De Wild. = *Tridactyle nalaensis.*
,, neglectum Frapp. = *Jumellea neglecta.*
,, nutans Frapp. = *Jumellea nutans.*
,, obversifolium Cordem. = *Angraecum obversifolium* Frapp.
,, occidentale Rolfe = *Angraecopsis occidentalis.*

Angraecum odoratissimum Rchb. f. = *Chamaeangis odoratissima.*
,, oeoniodes Schltr. = *Solenangis clavata.*
,, oliganthum Schltr. = *Chamaeangis oligantha.*
,, ovalifolium De Wild. = *Calyptrochilum ovalifolium.*
,, pachyurum Rolfe = *Aerangis pachyura.*
,, palmatum Thou. = *Angraecum palmiforme* Thou.
,, parviflorum Thou. = *Angraecopsis parviflora.*
,, pellucidum Ldl. = *Diaphananthe pellucida.*
,, penicillatum Cordem. = *Jumellea penicillata.*
,, Perrierii Schltr. = *Gussonea Perrierii.*
,, pertusum Ldl. = *Listrostachys pertusa* Rchb. f.
,, Pescatorianum Ldl. = *Listrostachys Pescatoriana* S. Moore
,, physophorum Rchb. f. = *Gussonea physophora* Ridl.
,, Plehnianum Schltr. = *Diaphananthe Plehniana.*
,, polystachyum A. Rich. = *Oeoniella polystachys.*
,, potamophilum Schltr. = *Aerangis potamophila.*
,, pulchellum Schltr. = *Aerangis pulchella.*
,, Pynaertii De Wild. = *Calyptrochilum Pynaertii.*
,, Quintasii Rolfe = *Diaphananthe Quintasii.*
,, rectum Thou. = *Jumellea recta.*
,, recurvum Thou. = *Jumellea recurva.*
,, Reichenbachianum Kränzl. = *Angraecum Scottianum* Rchb. f.
,, rhipsalisocium Rchb. f. = *Aerangis rhipsalisocia.*
,, rhodesianum Rendle = *Tridactyle rhodesiana.*
,, rhodostictum Schltr. = *Aerangis rhodosticta.*
,, Rohlfsiana Kränzl. = *Aerangis Rohlfsiana.*
,, roseocalcaratum De Wild. = *Aerangis roseocalcarata.*
,, Rothschildianum O'Brien = *Eurychone Rothschildiana.*
,, Rutenbergianum Kränzl. = *Jumellea Rutenbergiana.*
,, Sanderianum Rchb. f. = *Aerangis modesta.*
,, sankuruense De Wild. = *Aerangis sankuruensis.*
,, Saundersiae Bol. = *Aerangis mystacidii.*
,, scabripes Kränzl. = *Angraecum verrucosum* Rendle
,, scandens Schltr. = *Solenangis scandens.*
,, Schoellerianum Kränzl. = *Calyptrochilum Schoellerianum.*
,, Schumanni Kränzl. = *Phormangis Schumanni.*
,, Scottellii Rendle = *Tridactyle Scottellii.*
,, Sedeni Nichols. = *Cyrtorchis Sedeni.*
,, semipedale Rendle = *Aerangis Kotschyana.*
,, Sereti De Wild. = *Cyrtorchis Sereti.*
,, Smithii Rolfe = *Gussonea Smithii.*
,, Solheidi De Wild. = *Aerangis Solheidi.*
,, somalense Schltr. = *Aerangis somalensis.*
,, spathulatum Ridl. = *Jumellea Rutenbergiana.*
,, stella Schltr. = *Aerangis Gravenreuthii.*
,, stenophyllum Frapp. = *Jumellea stenophylla.*
,, stipitatum Frapp. = *Jumellea stipitata.*
,, stipulatum De Wild. = *Tridactyle stipulata.*
,, Straussii Schltr. = *Ancistrorhynchus Straussii.*
,, stylosum Rolfe = *Aerangis stylosa.*
,, subclavatum Rolfe = *Diaphananthe subclavata.*
,, subcylindrifolium De Wild. = *Cyrtorchis subcylindrifolia.*
,, subfalcifolium De Wild. = *Diaphananthe subfalcifolia.*
,, tenerrimum Schltr. = *Angraecum tenerrima* Kränzl.
,, thomense Rolfe = *Chamaeangis thomensis.*
,, Thomsoni Rolfe = *Aerangis Thomsoni.*
,, trachyrhizum Schltr. = *Tridactyle trachyrhiza.*
,, tricuspe Bol. = *Tridactyle tricuspis.*
,, tridactylites Rolfe = *Tridactyle tridactylites.*
,, tridens Ldl. = *Angraecopsis trifurca.*

Angraecum tridentatum Harv. = *Tridactyle tridentata.*
,, triquetrum Thou. = *Jumellea triquetra.*
,, vagans Ldl. = *Chamaeangis vagans.*
,, Verdickii De Wild. = *Aerangis Verdickii.*
,, verruculosum Boiv. = *Angraecum implicatum* Thou.
,, vesicatum Ldl. = *Chamaeangis vesicata.*
,, virens Ldl. = *Angraecum eburneum.*
,, virgula Kränzl. = *Tridactyle virgula.*
,, viride Kränzl. = *Angraecum Braunii.*
,, viridescens De Wild. = *Tridactyle Laurentii.*
,, Voeltzkowianum Kränzl. = *Angraecum comorense* Kränzl.
,, Whitfieldii Rendle = *Tridactyle Whitfieldii.*
,, Woodianum Schltr. = *Rhipidoglossum Woodianum.*
,, Zenkeri Schltr. = *Bolusiella Zenkeri.*
,, zigzag De Wild. = *Calyptrochilum zigzag.*
Beclardia elata A. Rich. = *Cryptopus elatum* Ldl.
Calyptrochilum Preussii Kränzl. = *Calyptrochilum emarginatum.*
Dendrobium arachnites Thou. = *Aeranthes arachnites* Ldl.
Dicranotaenia dahomensis Finet = *Gussonea dahomensis.*
Epidendrum brachystachya Thou. = *Beclardia brachystachya* A. Rich.
,, capense Linn. = *Mystacidium capense.*
,, imbricatum Sw. = *Angraecum imbricatum.*
,, macrostachys Thou. = *Beclardia macrostachys* A. Rich.
,, polystachys Thou. = *Oeoniella polystachys.*
,, volucre Thou. = *Oeonia volucris* Thou.
Epidorchis calceolus O. Ktze. = *Angraecum calceolus* Thou.
,, carpophora O. Ktze. = *Angraecum carpophora* Thou.
,, expansa O. Ktze. = *Angraecum expansum* Thou.
,, graminifolia O. Ktze. = *Angraecum graminifolium.*
,, inaperta O. Ktze. = *Angraecum inapertum* Thou.
,, multiflora O. Ktze. = *Angraecum multiflorum* Thou.
,, recta O. Ktze. = *Jumellea recta.*
,, saccifera O. Ktze. = *Angraecum sacciferum* Ldl.
,, subulata O. Ktze. = *Angraecum subulatum* Ldl.
,, tenellum O. Ktze. = *Angraecum tenellum.*
,, volucris O. Ktze. = *Oeonia volucris* Thou.
Eulophia angustifolia Eckl. et Zeyh. = *Tridactyle bicaudata.*
,, longicornis Sprgl. = *Mystacidium capense.*
Gastochilus striatus O. Ktze. = *Angraecum striatum* Thou.
Lepervanchea tenuifolia Cordem. = *Angraecum tenuifolium* Frapp.
Limodorum bidens Afz. = *Diaphananthe bidens.*
,, eburneum Willd. = *Angraecum eburneum* Bory
,, emarginatum Sw. = *Calyptrochilum emarginatum.*
,, longicorne Thbg. = *Mystacidium capense.*
,, longicornu Sw. = *Mystacidium capense.*
Listrostachys acuminata Rolfe = *Cyrtorchis acuminata.*
,, acuta Rolfe = *Diaphananthe acuta.*
,, Althoffii Dur. et Schinz = *Diaphananthe pellucida.*
,, amaniensis Kränzl. = *Leptocentrum amaniense.*
,, Aphrodite Balf. = *Oeoniella Aphrodite.*
,, arcuata Rchb. f. = *Cyrtorchis arcuata.*
,, Aschersoni Dur. et Schinz = *Cyrtorchis Aschersoni.*
,, ashantensis Rchb. f. = *Diaphananthe ashantense.*
,, Batesii Rolfe = *Bolusiella Batesii.*
,, Behnickiana Kränzl. = *Listrostachys pertusa* Rchb. f.
,, bidens Rolfe = *Diaphananthe bidens.*
,, bicaudatum Finet = *Tridactyle bicaudata.*
,, biloba Kränzl. = *Aerangis biloba.*
,, bistorta Rolfe = *Cyrtorchis bistorta.*
,, bracteosa Rolfe = *Angraecum bracteosum* Balf. f. et S. Moore

Listrostachys Braunii Dur. et Schinz = *Cephalangraecum Metteniae.*
„ Brownii Rolfe = *Cyrtorchis Brownii.*
„ Buchholziana Dur. et Schinz = *Cyrtorchis Buchholziana.*
„ capitata Rchb. f. = *Cephalangraecum capitatum.*
„ caudata Rchb. f. = *Leptocentrum caudatum.*
„ cephalotes Rchb. f. = *Cephalangraecum cephalotes.*
„ Chailluana Rchb. f. = *Cyrtorchis Chailluana.*
„ clandestina Rchb. f. = *Ancistrorhynchus clandestinus.*
„ clavata Rendle = *Angraecum clavatum.*
„ dactyloceras Rchb. f. = *Podangis dactyloceras.*
„ Dewevrei De Wild. = *Chamaeangis Dewevrei.*
„ divitiflora Kränzl. = *Diaphananthe divitiflora.*
„ Droogmansiana De Wild. = *Cyrtorchis Droogmansiana.*
„ Durandiana Kränzl. = *Ancistrorhynchus Durandianus.*
„ ealensis De Wild. = *Cyrtorchis ealensis.*
„ Elliottii Finet = *Gussonea Elliottii.*
„ Engleriana Kränzl. = *Aerangis Engleriana.*
„ Erythraeae Rolfe = *Cyrtorchis Erythraeae.*
„ falcata De Wild. = *Diaphananthe falcata.*
„ filiformis Kränzl. = *Tridactyle filiformis.*
„ fimbriata Rolfe = *Diaphananthe fimbriata.*
„ forcipata Kränzl. = *Podangis dactyloceras.*
„ fragrantissima Rchb. f. = *Diaphananthe fragrantissima.*
„ gabonensis Rolfe = *Rhipidoglossum rutilum.*
„ Gentilii De Wild. = *Cephalangraecum Gentilii.*
„ glomerata Rolfe = *Cephalangraecum glomeratum.*
„ graminifolia Kränzl. = *Aerangis graminifolia.*
„ hamata Rolfe = *Cyrtorchis hamata.*
„ Henriquesiana Rolfe = *Cyrtorchis Henriquesiana.*
„ Hookeri Rolfe = *Cyrtorchis Hookeri.*
„ ichneumonea Rchb. f. = *Chamaeangis ichneumonea.*
„ ignoti Kränzl. = *Cyrtorchis Hookeri.*
„ imbricata Rolfe = *Bolusiella imbricata.*
„ injoloensis De Wild. = *Cyrtorchis injoloensis.*
„ iridifolia Rolfe = *Bolusiella iridifolia.*
„ Kirkii Rolfe = *Diaphananthe Kirkii.*
„ latibracteata De Wild. = *Cyrtorchis latibracteata.*
„ Lecomtei Finet = *Chamaeangis Lecomtei.*
„ linearifolia De Wild. = *Tridactyle linearifolia.*
„ longissima Kränzl. = *Diaphananthe mystacidioides.*
„ Margaritae De Wild. = *Diaphananthe Margaritae.*
„ Metteniae Kränzl. = *Cephalangraecum Metteniae.*
„ Monteirae Rchb. f. = *Cyrtorchis Monteiroae.*
„ multiflora Rolfe = *Rhipidoglossum rutilum.*
„ muscicola Rolfe = *Aerangis muscicola.*
„ mystacidioides Kränzl. = *Diaphananthe mystacidioides.*
„ odoratissima Rchb. f. = *Chamaeangis odoratissima.*
„ palmiformis Dur. et Schinz = *Angraecum palmiforme* Thou.
„ Papagayi Rchb. f. = *Diaphananthe Papagayi.*
„ parviflora S. Moore = *Angraecopsis parviflora.*
„ pellucida Rchb. f. = *Diaphananthe pellucida.*
„ polydactyla Kränzl. = *Crossangis polydactyla.*
„ polystachys Rchb. f. = *Oeoniella polystachys.*
„ pulchella Kränzl. = *Mystacidium pulchellum.*
„ Pynaertii De Wild. = *Chamaeangis odoratissima.*
„ refracta Kränzl. = *Cyrtorchis refracta.*
„ rhipsalisocia Rolfe = *Aerangis rhipsalisocia.*
„ rutila Ridl. = *Rhipidoglossum rutilum.*
„ saxicola Kränzl. = *Podangis dactyloceras.*
„ Scheffleriana Kränzl. = *Rhipidoglossum Woodianum.*

Listrostachys Sedeni Rchb. f.=*Cyrtorchis Sedeni.*
,, Sereti De Wild.=*Cyrtorchis Sereti.*
,, subclavata Rolfe=*Diaphananthe subclavata.*
,, subcylindrifolia De Wild.=*Cyrtorchis subcylindrifolia.*
,, subfalcifolia De Wild.=*Diaphananthe subfalcifolia.*
,, subulata Rchb. f.=*Angraecum subulatum* Ldl.
,, thomensis Rolfe=*Chamaeangis thomensis.*
,, Thonneriana Kränzl.=*Diaphananthe pellucida.*
,, trachypus Kränzl.=*Aerangis rhipsalisocia.*
,, tridens Rchb. f.=*Angraecum tridens.*
,, trifurca Finet=*Angraecopsis trifurca.*
,, urostachya Kränzl.=*Chamaeangis urostachya.*
,, vagans Rolfe=*Chamaeangis vagans.*
,, vandaeformis Kränzl.=*Diaphananthe vandiformis.*
,, vesicata Rchb. f.=*Chamaeangis vesicata.*
,, virgula Rolfe=*Tridactyle virgula.*
,, Welwitschii Rchb. f.=*Diaphananthe Welwitschii.*
,, Whytei Rolfe=*Cyrtorchis Whytei.*
,, Wittmacki Rolfe=*Cyrtorchis Wittmackii.*
,, Zenkeri Kränzl.=*Bolusiella Zenkeri.*
,, Zenkeriana Kränzl.=*Listrostachys pertusa* Rchb. f.
Macroplectrum Baronii Finet=*Angraecum Baronii.*
,, calceolus Finet=*Angraecum calceolus* Thou.
,, cucullatum Finet=*Angraecum cucullatum* Thou.
,, Didieri Finet=*Angraecum Didieri* Baill.
,, distichophyllum Finet=*Angraecum distichophyllum* A. Rich.
,, distichum Finet=*Angraecum imbricatum.*
,, gladiifolium Pfitz.=*Angraecum mauritianum* Frapp.
,, implicatum Finet=*Angraecum implicatum* Thou.
,, Leonis Finet=*Angraecum Leonii* Veitch
,, madagascariense Finet=*Angraecum madagascariense.*
,, pectinatum Finet=*Angraecum pectinatum* Thou.
,, ramosum Finet=*Angraecum ramosum* Thou.
,, rectum Finet p.p.=*Jumellea recta.*
,, rectum Finet p.p.=*Jumellea recurva.*
,, sesquipedale Pfitz.=*Angraecum sesquipedale* Thou.
,, xylopus Finet=*Angraecum xylopus* Rchb. f.
Microcoelia exilis Ldl.=*Gussonea exilis* Ridl.
,, ?taeniophyllum Hochst.=*Gussonea globulosa* Ridl.
Monixus claviger Finet=*Angraecum clavigerum.*
,, graminifolius Finet=*Angraecum graminifolium.*
,, multiflorus Finet=*Angraecum multiflorum* Thou.
,, polystachys Finet=*Oeoniella polystachys.*
,, striatus Finet=*Angraecum striatum* Thou.
Mystacidium aphyllum Dur. et Schinz=*Gussonea aphylla* A. Rich.
,, appendiculatum De Wild.=*Aerangis appendiculata.*
,, astroarche Rolfe=*Angraecum astroarche* Ridl.
,, Batesii Rolfe=*Aerangis mixta.*
,, calceolus Cordem.=*Angraecum calceolus* Thou.
,, carpophorum Cordem.=*Angraecum carpophorum* Thou.
,, cilaosianum Cordem.=*Angraecum cilaosianum.*
,, clavatum Rolfe=*Angraecum clavatum.*
,, comorense Dur. et Schinz=*Jumellea comorensis.*
,, conjolense De Wild.=*Rhipidoglossum rutilum.*
,, costatum Cordem.=*Angraecum costatum* Frapp.
,, dauphinense Rolfe=*Angraecum dauphinense.*
,, distichum Pfitz.=*Angraecum imbricatum.*
,, dolabriforme Rolfe=*Angraecopsis dolabriformis.*
,, erythropollinium Dur. et Schinz=*Rhipidoglossum xanthopollinium.*

Mystacidium filicorne Ldl. = *Mystacidium capense.*
,, Germinyanum Rolfe = *Angraecum ramosum* Thou.
,, Gerrardi Bol. = *Rhipidoglossum Gerrardi.*
,, gladiifolium Rolfe = *Angraecum mauritianum.*
,, globulosum Dur. et Schinz = *Gussonea globulosa* Ridl.
,, graminifolium Ridl. = *Angraecum graminifolium.*
,, Gravenreuthii Rolfe = *Aerangis Gravenreuthii.*
,, Hariotianum Kränzl. = *Chamaeangis Hariotiana.*
,, Hermanni Cordem. = *Angraecum Hermanni.*
,, Humblotii Finet = *Angraecum Finetianum.*
,, inapertum Ridl. = *Angraecum inapertum* Ridl.
,, infundibulare Rolfe = *Angraecum infundibulare* Ldl.
,, Keniae Rolfe = *Angraecum Keniae* Kränzl.
,, Laurentii De Wild. = *Tridactyle Laurentii.*
,, Ledermannianum Kränzl. = *Tridactyle Ledermanniana.*
,, Leonis Rolfe = *Angraecum Leonii* Veitch
,, longicornu Dur. et Schinz = *Mystacidium capense.*
,, longinode Cordem. = *Angraecum longinode* Frapp.
,, Mahoni Rolfe = *Rhipidoglossum Woodianum.*
,, mauritianum Dur. et Schinz = *Angraecum mauritianum* Frapp.
,, Mildbraedii Kränzl. = *Diaphananthe Mildbraedii.*
,, minutum Cordem. = *Angraecum minutum* Frapp.
,, multiflorum Cordem. = *Angraecum multiflorum* Thou.
,, muscicolum Dur. et Schinz = *Aerangis muscicola.*
,, nanum Cordem. = *Angraecum nanum* Frapp.
,, ochraceum Ridl. = *Angraecum ochraceum.*
,, pectinatum Benth. = *Angraecum pectinatum* Thou.
,, Peglerae Bol. = *Rhipidoglossum Peglerae.*
,, pingue Cordem. = *Angraecum pingue* Frapp.
,, polyanthum Kränzl. = *Sarcorhynchus polyanthus.*
,, productum Kränzl. = *Diaphananthe producta.*
,, pseudo-petiolatum Cordem. = *Angraecum pseudo-petiolatum* Frapp.
,, radicosum Dur. et Schinz = *Gussonea globulosa* Ridl.
,, rutilum Dur. et Schinz = *Rhipidoglossum rutilum.*
,, Schumanni Rolfe = *Phormangis Schumanni.*
,, sesquipedale Rolfe = *Angraecum sesquipedale* Thou.
,, spicatum Cordem. = *Angraecum spicatum.*
,, striatum Cordem. = *Angraecum Cordemoyi.*
,, tenellum Ridl. = *Angraecum tenellum.*
,, tridens Rolfe = *Angraecum tridens.*
,, trifurcum Dur. et Schinz = *Angraecum trifurca.*
,, undulatum Cordem. = *Angraecum undulatum.*
,, verrucosum Rolfe = *Angraecum verrucosum* Rendle.
,, viride Ridl. = *Angraecum viride.*
,, xanthopollinium Dur. et Schinz = *Rhipidoglossum xanthopollinium.*
,, zeylanicum Trimen = *Angraecum zeylanicum* Ldl.
Oeceoclades parviflora Ldl. = *Angraecopsis parviflora.*
Oeonia brachystachya Ldl. = *Beclardia brachystachya* A. Rich.
,, macrostachya Ldl. = *Beclardia macrostachya* A. Rich.
,, polystachya Bth. = *Oeoniella polystachys.*
,, robusta Schltr. = *Angraecum robustum.*
Orchis mauritiana Poiv. = *Angraecum mauritianum* Frapp.
,, Thouarsii Cordem. = *Angraecum pectinatum.*
Radinocion flexuosum Ridl. = *Aerangis flexuosa.*
Rhaphidorhynchus aphyllus Finet = *Gussonea aphylla* A. Rich.
,, Chilochistae Finet = *Gussonea Chilochistae.*
,, citratus Finet = *Aerangis citrata.*

Rhaphidorhynchus cornutus Finet=*Gussonea cornuta.*
,, Curnowianus Finet=*Jumellea Curnowiana.*
,, fastuosus Finet=*Aerangis fastuosa.*
,, Kotschyi Finet=*Aerangis Kotschyana.*
,, macrostachys Finet=*Beclardia macrostachya* A. Rich.
,, modestus Finet=*Aerangis modesta.*
,, Perrierii Finet=*Gussonea Perrierii.*
,, Pobeguinii Finet=*Chamaeangis Pobeguinii.*
,, spiculatus Finet=*Leptocentrum spiculatum.*
,, umbonatus Finet=*Aerangis umbonata.*

XLI.—CONTRIBUTIONS TO THE FLORA OF SIAM* ADDITAMENTUM XIX. W. G. Craib.

Impatiens betongensis *Craib* [Balsaminaceae]; ab affini *I. exilipede* Hook. f. ex Ridl. foliis oppositis rarius verticillatis, sepalis lateralibus dorso pilosis recedit.

Herba annua; caules erecti, circa 60 cm. alti, simplices vel saepe breviter ramosi, cito glabri, sicco straminei. *Folia* opposita vel rarius per tria, lanceolata vel oblongo-oblanceolata, apice acuminata vel saltem angustata, summo apice mucronata, basi attenuato-cuneata vel acuminata, 5·5–10 cm. longa, 1·7–3·7 cm. lata, membranacea, sicco viridia, subtus pallidiora, pagina superiore setulis paucis instructa, inferiore ad costam nervosque laterales sparse pilosa vel mox fere glabra, nervis lateralibus utrinque 5–7 pagina utraque, sed inferiore magis, conspicuis intra marginem sursum curvatis mox evanidis, margine anguste apiculato-serrulata vel crenulato-serrulata, petiolo 1–4 cm. longo primo parce piloso mox glabro superne lamina decurrente anguste alato suffulta; glandulae stipuliformes evolutae, circa 3 mm. longae, persistentes vel deciduae. *Pedicelli* axillares, solitarii, circa 4·5 cm. longi vel sub fructu ad 6 cm. longi, glabri, mox patuli; flores punicei (ex *Kerr*). *Sepala* 3; duo lateralia oblonga, longius apiculata, parum inaequilateralia, 7·5 mm. longa, 3 mm. lata, dorso ferrugineo-pilosa, ciliata; posticum (labellum), limbo 3·5 mm. longo apice 11 mm. diametro, calcare gracili 3·5 cm. longo. *Vexillum* transverse elliptico-rotundatum, apice emarginatum, apiculo recurvo instructum, 10 mm. longum, 14 mm. latum, dorso medio pubescens et basem versus alatum; alae inter se liberae, 1·7 cm. longae, lobo basali subelliptico 10 mm. longo, 8 mm. lato, distali apice parum retuso apiculato 11 mm. lato. *Filamenta* 2 mm. longa. *Ovarium* glabrum, 3 mm. altum.

Pattani, Betong, 200 m., by stream in evergreen forest, *Kerr* 7685.

Glycosmis parva *Craib* [Rutaceae-Aurantieae]; a *G. montana* Pierre foliis angustioribus, filamentis inferne ampliatis, a

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* Continued from *K.B.*, 1926, p. 174.

G. dinhense Pierre ex Guillaumin petalis haud dorso pilosis, foliis haud longe acuminatis recedit.

Frutex circa 1·5 m. altus (ex *Kerr*); ramuli graciles, primo subferrugineo-tomentosi vel pubescentes, compressi, mox puberuli, cortice cinereo vel brunneo-cinereo obtecti, lenticellis haud conspicuis. *Folia* alterna, interdum subopposita, lanceolata, apice obtusa, interdum retusa, rarius subacuminata, 3·5–9 cm. longa, 1–2·5 cm. lata, chartaceo-coriacea, supra viridia, ad costam breviter subtomentella vel matura fere glabra, subtus pallide viridia, subglabra, costa supra conspicua subtus prominente, nervis lateralibus utrinque 11–14 rectis intra marginem anastomosantibus supra obscuris vel subconspicuis subtus subprominentibus, aliis paulo minus validis interpositis, nervulis subtus prominulis, margine integra, petiolo 2–6 mm. longo primo puberulo mox fere glabro supra canaliculato suffulta. *Inflorescentia* axillaris, petiolo subaequilonga vel eo paululo longior, pedunculo communi ferrugineo-pubescente perbrevi vel sub fructu circa 1 mm. longo suffulta; flores albi (ex *Kerr*), pedicello brevi articulato subglabro bracteolato suffulti. *Sepala* 5, subrotundata, vix 1·5 mm. diametro, dorso glabra, glandula unica prominente instructa, ciliata. *Petala* 5, oblongo-lanceolata, apice obtusa, basi angustata, 4 mm. longa, 1·5 mm. lata, glabra, glandulosa. *Discus* brevis, crenulatus, glaber. *Filamenta* complanata, apice acuminata, ad 2·5 mm. longa, glabra, antheris 0·75 mm. longis apice glandula parva conspicua globosa ornatis. *Pistillum* glabrum, 1·75 mm. altum, glandulosum, stylo valido vix distincto. *Fructus* subellipsoideus, circa 7 mm. longus.

Krabin, Sakêo, 50 m., evergreen forest, *Kerr* 9766.

Glycosmis subsessilis *Craib* [Rutaceae-Aurantieae]; a *G. montana* Pierre inflorescentia fere sessili, petalis et ovario haud glabris recedit.

Frutex 2–3-metralis (ex *Kerr*); ramuli primo dense griseo- vel ferrugineo-tomentelli, plus minusve compressi, mox puberuli, demum glabri, cortice cinereo vel brunneo-cinereo obtecti, lenticellis haud conspicuis. *Folia* unifoliolata vel rarius 3-foliolata, petiolo ad 2·5 cm. longo subterete puberulo suffulta; foliola ovata, ovato-lanceolata, vel rarius oblongo-elliptica, apice acuminata vel subacuminata, basi rotundata vel cuneato-rotundata, saepe acuminata, 4·5–9·5 cm. longa, 2·3–4·5 cm. lata, lateralia, ubi evoluta, alterna, circa 4·5 cm. longa, coriacea, supra viridia, saepe nitida, subtus pallide viridia vel saepe sublutescentia, pagina utraque ad costam puberula, aliter glabra vel sparse breviter puberula, nervis lateralibus utrinque 8–9 supra obscuris vel parum prominulis subtus subprominentibus rectis vel subrectis intra marginem anastomosantibus, nervulis supra paucis saepe subprominulis subtus rete laxum prominulum efficientibus, margine obsolete crenulata, petiolulo incrassato 3–5 mm. longo puberulo supra canaliculato suffulta. *Inflorescentia* axillaris, congesta,

circa 5 mm. longa, pedunculo communi perbrevi ferrugineo-piloso suffulta; pedicelli etiam perbreves, articulati, bracteolati. *Sepala* 5, circa 1 mm. longa, apice rotundata, dorso nisi marginem versus ferrugineo-pilosula, intra subglabra, glandula unica prominente instructa, ciliata. *Petala* 5, oblongo-oblanceolata, apice obtusa, 2·75 mm. longa, 1·25 mm. lata, dorso ferrugineo-pilosula, intra glabra, glandulosa. *Stamina* 10, filamentis complanatis apice acuminatis glabris 1·25 mm. longis, antheris 0·75 mm. longis apiculatis. *Ovarium* ovoideum, 1·5 mm. altum, dense ferrugineo-pilosulum, stigmate sessili pallido.

Kêng Koi, Mênam Pasak, 50 m., evergreen forest on limestone hill, *Kerr* 7964.

Glycosmis Winitii *Craib* [Rutaceae-Aurantieae]; ab affini *G. puberula* Lindl. inflorescentia maiore terminali differt.

Arbor 5–8-metralis (ex *Kerr*); ramuli iuventute dense breviter ferrugineo-tomentosi, cito glabrescentes, cortice pallido demum rubro-brunneo obtecti. *Folia* alterna, 5–9-foliolata, 16–27 cm. (petiolo 2–3·5 cm. longo incluso) longa, et petiolo et rhachi primo indumento ei ramulorum simili tectis mox glabris teretibus vel hoc ad foliorum insertionem paulo complanato; foliola alterna, terminali excepto inferne inaequilateralia, anguste oblonga, oblonga, vel oblongo-oblanceolata, apice acuminata vel caudato-acuminata, summo apice obtusa vel costa excurrente brevissime apiculata, basi terminalia cuneata, lateralia saepissime latere altero cuneata vel acuminata, altero cuneata, late cuneata, vel rotundato-cuneata, 5–14 cm. longa, 2–5 cm. lata, chartacea vel rigide chartacea, sicco viridia, subtus pallidiora, pagina utraque matura glabra, nervis lateralibus utrinque 9–12 intra marginem anastomosantibus supra gracilibus conspicuis vel subconspicuis subtus prominulis, nervulis supra interdum conspicuis subtus gracilibus subprominulis, margine integra, petiolulo 5–7 mm. longo supra canaliculato suffulta. *Panicula* floribunda, terminalis, ad 15 cm. longa et 13 cm. lata, sessilis vel pedunculo communi ad 4 cm. longo suffulta, indumento ei ramulorum simili ferrugineo tecta, cito plus minusve glabrescens; pedunculi partiales ad 1·7 cm. longi; pedicelli circa 3 mm. longi; alabastra subglobosa, dense ferrugineo-tomentella. *Sepala* deltoidea, obtusa, circa 0·75 mm. longa. *Petala* oblongo-oblanceolata, obtusa, basi in stipitem brevem attenuata, 5·5 mm. longa, 2 mm. lata, dorso persistenter ferrugineo-tomentella, intra sparse pubescentia sed glabrescentia. *Filamenta* 4·5 mm. longa, infra medium parum ampliata, glabra, antheris 1·5 mm. longis glabris. *Ovarium* 1·25 mm. longum, inferne glabrum, apice breviter ferrugineo-pubescens, stylo crasso paululo longius, glandulis 5 apice instructum, 5-loculare, ovulis in loculis solitariis.

Doi Thom, 750 m., evergreen forest, *Winit* 9 (*type*). Lampang, Mê Ta, 300 m., deciduous jungle on rocky limestone hill, *Kerr* 4841. Chiengdao, Mê Poi, 500 m., rocky limestone hill, *Kerr* 5238.

Murraya siamensis *Craib* [Rutaceae-Aurantieae]; a *M. Koenigii* Spreng. fructu maiore globoso haud ambitu oblongo inter alia recedit.

Arbor parva, caule cortice fusco alte rugato obtecto (ex *Winit*); ramuli iuventute crispatim pubescentes, annotini puberuli, demum fusco-corticati, parvi-lenticellati. *Folia* 15–24 cm. (petiolo 1–2·5 cm. longo incluso) longa, petiolo et rhachi subteretibus densius crispatim pubescentibus; foliola 17–25, alterna vel rarius subopposita, inaequilateralia, latere altero dimidiatim oblanceolata vel lanceolata, basi angustata, altero dimidiatim ovata, basi subtruncata, apice obtusa, subacuminata, 2–7 cm. longa, 1–2·7 cm. lata, chartacea, supra crispatim pubescentia, cito plus minusve glabrescentia, subtus praesertim ad costam pubescentia, nervis lateralibus utrinque 5–7 intra marginem anastomosantibus supra mox conspicuis subtus prominulis, nervulis supra subconspicuis subtus rete gracile prominulum efficientibus, margine subintegra vel plus minusve obsolete crenulata, petiolulo circa 2 mm. longo densius crispatim pubescente suffulta. *Panicula* terminalis, subcorymbosa, 1·5 cm. longa; pedicelli 3–4 mm. longi, breviter crispatim pubescentes. *Sepala* 5, ovato-lanceolata vel deltoidea, obtusa, 1·25 mm. longa, extra breviter crispatim pubescentia. *Petala* 5, lineari-oblanceolata, incurvo-apiculata, 6·5 mm. longa, 1·75 mm. lata, glabra, medio incrassata, imbricata. *Discus* carnosus, glaber, calyce paulo brevior. *Stamina* 10, alterna breviora et longiora, filamentis 4–5 mm. longis apicem versus angustatis parte dimidia inferiore paulo ampliatis sed vix complanatis, antheris circa 1 mm. longis papillosis. *Ovarium* ambitu suboblongum, vix 1·5 mm. longum, glabrum, breviter stipitatum; stylus 3·5 mm. longus, basi articulatus, glaber, stigmate capitato. *Fructus* vix maturus, 1 cm. diametro.

Lampang, Mê Kat, 250 m., deciduous jungle, *Winit* 849 (*type*). Mê Ping Rapids, Ok Ma, 135 m., mixed jungle on river bank, *Kerr* 2188.

Clausena longipes *Craib* [Rutaceae-Aurantieae]; a *C. suffruticosa* Wight et Arn. et *C. Willdenowii* Wight et Arn. partibus omnibus gracilioribus, pedicellis longioribus recedit.

Frutex 2–4-metralis (ex *Kerr*); ramuli graciles, iuventute crispatim pubescentes, sicco straminei, mox glabri, cortice cinereo-brunneo vel fusco-brunneo obtecti, lenticellis numerosis parvis hic et illic conspicuis. *Folia* pinnata, 15–20 cm. (petiolo 3–4 cm. longo incluso) longa, et petiolo et rhachi breviter crispatim pubescentibus et glandulis instructis; foliola 11, alterna, ovata vel late lanceolata, apice acuminata, summo apice obtusa vel breviter mucronulata, basi plus minusve inaequilateralia, rotundata vel late cuneata, usque ad 6·5 cm. longa et 2·5 cm. lata, membranacea, sicco viridia, supra ad costam nervosque laterales interdum etiam nervulos robustiores breviter crispatim pubescentia, subtus glabra vel subglabra, nervis lateralibus utrinque 6–8 supra subconspicuis

subtus prominulis, hic et illic ciliata, glandulis marginalibus conspicuis, petiolulo circa 1 mm. longo densius crispatim pubescente suffulta. *Inflorescentia* racemosa, rarissime paniculata, e parte inferiore nuda ramulorum hornotinorum orta, ramulo quoque saepissime 2 vel 3 gerente, ad 10 cm. (pedunculo communi 3–5 cm. longo incluso) longa, sparse crispatim pubescens, cito glabrescens; bracteae deciduae; pedicelli graciles, 5–12 mm. longi. *Sepala* 4, lanceolata vel rarius subovata, acuta, 1·25–2 mm. longa, usque ad 0·75 mm. lata, ciliata, glabra vel dorso pilis sparsis instructa. *Petala* oblongo-obovata, 4 mm. longa. *Filamenta* 3 mm. longa, inferne ampliata, superne gracilia, papillosa; antherae 1·25 mm. longae. *Ovarium* 1·5 mm. altum, glabrum, glandulosum, gynophoro 0·75 mm. longo glabro suffultum; stylus glaber, ovario subaequilongus, deciduus.

Mê Lan, Mê Hawng Sawn, 700 m., on limestone rocks, *Kerr* 5486A, 5486.

Ouratea arcta *Craib* [Ochnaceae-Ochneae]; ab affini *O. angustifolia* Baillon inflorescentia angusta recedit.

Frutex c. 2 m. altus (ex *Kerr*), partibus omnibus glaber; ramuli graciles, cortice brunneo-cinereo vel cinereo obtecti. *Folia* oblonga, oblongo-lanceolata vel oblongo-oblanceolata, apice acuminata, acuta, basi cuneata vel subacuminato-cuneata, 8–21 cm. longa, 2·3–5 cm. lata, chartacea, sicco subtus pallidiora, nervis lateralibus numerosis approximatis inter se parallelis patulis pagina utraque conspicuis vel superiore subconspicuis, nervis intramarginalibus solitariis conspicuis vel in foliis maioribus geminis, nervulis rete gracile pagina utraque conspicuum efficientibus, margine, parte triente vel dimidia inferiore excepta, serrulata, petiolo 2–5 mm. longo incrassato suffulta; stipulae circa 5 mm. longae, deciduae. *Paniculae* terminales, racemiformes, ad 8 cm. longae, pedunculis partialibus haud evolutis, fasciculis inter se sat distantibus basi bractea foliacea instructis, pedicellis inferne articulatis basi bracteatis sub anthesin 4–5 mm. mox ad 9 mm. longis; flores lutei (ex *Kerr*). *Sepala* 5, oblongo-lanceolata, obtusa, 5·5 mm. longa, 2 mm. lata, dorso medio viridia, pallide marginata. *Petala* 5, oblongo-oblanceolata, 6 mm. longa, 2·5 mm. lata. *Antherae* sessiles, 5 mm. longae. *Ovarium* glabrum, stylo glabro stamina vix aequante.

Kaw Chang, Klawng Mayom, 10–350 m., evergreen forest, *Kerr* 6849.

Canarium venosum *Craib* [Burseraceae-Bursereae]; a *C. cinereo* Guillaumin stipulis petiolo saepissime adnatis, foliolorum nervis lateralibus magis numerosis, nervulis haud obscuris, corolla dimidio longiore differt.

Arbor circa 15 m. alta (ex *Kerr*); alabastra terminalia pallide ferrugineo-pilosa; ramuli primo tomentello-furfuracei, sulcati, cito plus minusve glabrescentes, cortice cinereo-brunneo obtecti,

lenticellis interdum conspicuis. *Folia* 3–7-foliolata, 15–30 cm. (petiolo 6–10 cm. longo incluso) longa, et petiolo et rhachi maturis puberulis vel supra apicem versus pilosulis plus minusve striatis; stipulae integrae, angustae, 10–14 mm. longae, fere ad medium petiolo adnatae, indumento ei ramulorum simili tectae; foliola oblonga vel oblongo-lanceolata, terminali saepe oblongo-oblanceolato, apice acuminata vel subacuminata, costa breviter excurrente notata, basi inferiora aequaliter vel subaequaliter rotundata vel truncata, superiora saepe conspicue inaequilateralia, lateribus dimidiatim cuneata vel rotundato-cuneata, terminali basi aequaliter cuneato, 5·5–15 cm. longa, 2–4·8 cm. lata, coriaceo-chartacea, sicco viridia, subtus pallidiora, supra ad costam pubescentia vel pilosa, aliter puberula, subtus densius puberula, nervis lateralibus utrinque 14–20 supra conspicuis vel subprominulis subtus prominentibus, nervulis rete gracile subtus magis prominulum efficientibus, margine denticulata, lateralia inferiora petiolo ad 8 mm. longo suffulta, superiora in foliis 5–7-foliolatis saepissime sessilia, terminali a lateralibus circa 2 cm. distante. *Paniculae* masculae thyrsoideae, circa 15 cm. (pedunculo communi circa 5 cm. longo incluso) longae, et pedunculo et rhachi crispatim pilosulis; cymae ad 3 cm. inter se distantes, pedunculo ad 6 mm. longo suffultae, bracteis deciduis; pedicelli ad 2 mm. longi, basi bracteati. *Calyx* 2·5 mm. longus, apice 3-undulatus, ciliatus, extra griseo- vel subferrugineo-pubescens. *Petala* 3, circa 9 mm. longa et 1·75 mm. lata, superne incrassata, extra breviter griseo-pubescentia, inferne glabrescentia, intra glabra. *Filamenta* 6·5 mm. longa, glabra, inferne parum ampliata, basi ad 2 mm. coalita, antheris 1·75 mm. longis glabris apiculatis.

Dan Sai, Hui Nam Man, 600 m., savannah forest, *Kerr* 5814.

Chisocheton siamensis *Craib* [Meliaceae-Trichilieae]; a *C. paniculato* Hiern foliolis maioribus, pedicellis brevioribus inter alia recedit.

Arbor circa 8 m. alta (ex *Kerr*); ramuli validi, crassius sulcati vel compressi, iuventute dense adpresse pubescentes, mox glabri, fusci, lenticellis hic et illic conspicuis. *Folia* ad 63 cm. (petiolo ad 18 cm. longo incluso) longa, petiolo basi incrassato inferne glabro, rhachi superne densius fulvo-pubescente inferne cum petioli parte superiore puberulo; foliola 4-9-iuga, inferiora alterna, superiora opposita, oblonga vel elongato-oblonga, apice acuminata, basi inaequilateralia, latere altero dimidiatim rotundata, altero dimidiatim rotundata vel subcuneata, ad 24 cm. longa et 7 cm. lata, chartacea, supra tantum ad costam vel etiam ad nervos laterales pubescentia, subtus ad costam nervosque laterales pubescentia, aliter parce pubescentia, nervis lateralibus utrinque circa 15 intra marginem anastomosantibus supra plus minusve conspicuis subtus prominentibus, nervis transversis pagina utraque conspicuis, margine integra, recurva, petiolulis circa 5 mm. longis dense pubescentibus sat validis suffulta. *Paniculae* iuventute densius

pubescentes, mox plus minusve glabrescentes, circa 50 cm. longae, pedunculo communi circa 6 cm. longo suffultae, ramis inferioribus circa 20 cm. longis, pedicellis 2 mm. longis. *Calyx* 4-lobulatus, 1·5 mm. longus. *Petala* 4–6, circa 18·5 mm. longa, 1·75 mm. lata, extra apicem versus puberula. *Tubus staminalis* 17 mm. longus, apice 6-dentatus, extra superne hirsutus, intra medium versus pilis paucis instructus; antherae 6, dorso pilis paucis sat longis instructae. *Discus* 0·5 mm. altus, glaber. *Ovarium* circa 1 mm. altum, hirsutum; stylus 17·5 mm. longus, nisi apicem versus hirsutus, stigmate capitato.

Chiengmai, 650 m., evergreen jungle, *Winit* 1136. Mê Hawng Sawn, Mê Mue, 500 m., evergreen forest by stream, *Kerr* 6171 (*type*).

Aglaia marginata *Craib* [Meliaceae-Trichilieae]; ab *A. cinerea* King foliolis magis numerosis oppositis saepissime oblanceolatis recedit.

Arbor circa 15 m. alta (ex *Kerr*); ramuli iuventute squamulis stellatis dense ferrugineo-furfuraceo-tomentelli, demum glabrescentes, cortice cinereo-brunneo obtecti, lenticellis numerosis haud conspicuis. *Folia* petiolo 4–7·5 cm. longo incluso 13–36 cm. longa, petiolo basi incrassato cum rhachi supra canaliculato indumento ei ramulorum simili tecto suffulta; foliola 5–11, opposita vel infima subopposita, saepissime oblanceolata, inferioribus saepe oblongis et aliis paulo minoribus, apice breviter acuminata, basi lateralia inaequaliter cuneata, terminali aequaliter attenuato-cuneata, usque ad 18 cm. longa et 5 cm. lata, rigide chartacea, supra glabra vel ad costam impressam squamis stellatis ferrugineis instructa, subtus pallidiora, ad costam nervosque laterales indumento ei ramulorum simili tecta, plus minusve glabrescentia, nervis lateralibus utrinque 11–18 rectis vel subrectis intra marginem sursum curvatis supra conspicuis saepe parum impressis subtus prominentibus, nervulis vix conspicuis, integra, petiolulo circa 7 mm. longo supra canaliculato suffulta, terminali a lateralibus 1–2 cm. distante. *Paniculae* ad apices ramulorum positae, axillares, ad 30 cm. (pedunculo communi 3–4 cm. longo incluso) longae, ramis inferioribus ad 9 cm. longis plus minusve patulis, partibus omnibus indumento ei ramulorum simili instructae; flores lutei (ex *Kerr*), primo congesti, sub anthesin laxiusculi, pedicellis ad 2 mm. longis suffulti. *Sepala* variabilia, saepissime 4, deltoidea vel lineari-oblonga, obtusa, 0·75–1·5 mm. longa, extra pilis stellatis ferrugineis tecta, intra glabra, ciliata. *Petala* 5, variabilia, ovata, obovata, vel oblonga, ad 1·5 mm. longa et 1 mm. lata, glabra. *Tubus staminalis* 0·5 mm. longus, inferne contractus, apice 1 mm. diametro; antherae 5, circa 0·3 mm. longae, ad tubi apicem insertae, exsertae. *Ovarium* breve, pilosum, stylo brevi, stigmate subellipsoideo.

Pattani, Kao Kalakiri, 700 m., evergreen forest, *Kerr* 7809.

Aglaia oblanceolata *Craib* [Meliaceae-Trichilieae]; species *A. repoeunsi* Pierre habitu similis sed ob petiolum alatum *A. odoratae* Lour. affinis, ab hac foliis diversis recedit.

Frutex circa 4 m. altus vel arbor ad 10 m. alta (ex *Kerr*); ramuli iuventute squamulis stellatis ferrugineis subdense tecti, mox glabri, cortice cinereo-brunneo vel cinereo obtecti, lenticellis mox conspicuis prominentibus. *Folia* 5-foliolata, ad 16 cm. (petiolo ad 3 cm. longo incluso) longa, et petiolo et rhachi anguste alatis cito glabris; foliola saepissime oblanceolata, apice breviter obtuse acuminata vel subacuminata, basi attenuato-cuneata, ad 11 cm. longa et 3·7 cm. lata; rigide chartacea, sicco viridia, subtus pallidiora, glabra, nervis lateralibus utrinque circa 8 intra marginem anastomosantibus supra subconspicuis subtus prominentibus, nervulis rete gracile supra interdum conspicuum subtus prominulum efficientibus, integra, petiolulo 1–2 mm. longo suffulta. *Paniculae* axillares, foliis parum breviores, glabrae; bracteae parvae, deciduae; pedicelli circa 1 mm. longi. *Sepala* 5, circa 0·5 mm. longa, glabra. *Petala* 5, oblonga, apice rotundata, 2·25 mm. longa, 1·5 mm. lata, glabra. *Tubus staminalis* circa 1·25 mm. longus, inferne angustatus, 5-angulatus, antheris 5 inclusis 0·75 mm. longis. *Pistillodium* columnare, apicem versus breviter pubescens. *Fructus* brunneus, saepissime ellipsoideus, ad 1·3 cm. longus, squamulis stellatis ferrugineis subsparse tectus.

Kampêng, mixed jungle, *Kerr* 2032. Between Kampêng and Paknampo, 90 m., near a village, *Kerr* 3001. Nakawn Sawan, Mê Wong, 200 m., mixed deciduous forest, *Kerr* 6034 (*type*).

Walsura angulata *Craib* [Meliaceae-Trichilieae]; ab affini *W. robusta* Roxb. petiolo lateraliter conspicue angulato, filamentis haud liberis facile distinguenda.

Arbor circa 10 m. alta (ex *Kerr*); ramuli puberuli, mox glabri, plus minusve angulati, cortice cinereo vel pallide cinereo obtecti, lenticellis inconspicuis. *Folia* 9·5–22 cm. (petiolo 1·5–4 cm. longo supra subplano conspicue lateraliter angulato incluso) longa, glabra; foliola 5, rarissime 3, oblonga vel subelliptica, vel terminalia oblongo-oblanceolata vel obovata, apice acuminata, basi cuneata vel rotundata, 5·5–13 cm. longa, 2–5 cm. lata, chartaceo-coriacea, subtus pallidiora, nervis lateralibus utrinque 7–10 gracilibus supra conspicuis vel subprominulis subtus prominentibus, nervulis copiosis supra subconspicuis subtus conspicuis, integra, petiolulo 5–12 mm. longo supra canaliculato suffulta, terminali a lateralibus usque ad 3 cm. distante. *Paniculae* 2–3, in ramulis hornotinis racemosim dispositae, ex axillis foliorum bracteiformium ortae, ad 12 cm. (pedunculo communi circa 3 cm. longo incluso) longae, ramis inferioribus ad 4 cm. longis, puberulae; bracteae angustae, 2 mm. longae, deciduae; pedicelli 3 mm. longi, infra medium articulati. *Sepala* exteriora oblongo-ovata, interiora ovata, acutiuscula, ad 2 mm. longa et 1·25 mm. lata, basi breviter connata, dorso puberula, ciliolata. *Petala* 5, oblongo-oblanceolata

vel oblonga, obtusa vel obtuse acuminata, 4 mm. longa, 2·25 mm. lata, extra puberula, intra glabra, ciliolata. *Stamina* 3 mm. longa; filamenta complanata, basi usque ad medium vel saltem ad partem trientem connata, utrinque inferne glabra, superne parce pilosa, apice bidentata, antheris sicco fuscis ad 0·75 mm. longis. *Ovarium* disco glabro immersum, cum stylo parcius puberulum.

Sriracha, Nawng Kaw, 50 m., evergreen forest, *Kerr* 6793.

Walsura intermedia *Craib* [Meliaceae-Trichilieae]; a *W. hypoleuca* Kurz foliis multo minoribus, filamentis haud liberis, ovario subglabro, a *W. cochinchinense* Harms foliolis minoribus, paniculis multo maioribus recedit.

Arbor circa 20 m. alta (ex *Kerr*); alabastra terminalia dense pallide ferrugineo-tomentella; ramuli iuventute angulati, ferrugineo-puberulo-furfuracei. *Folia* 3–5-foliolata, 11–28 cm. (petiolo 3–5·5 cm. longo incluso) longa, petiolo et rhachi supra canaliculatis indumento ei ramulorum simili iuventute tectis; foliola lanceolata, apice acute acuminata vel subacuminata, basi cuneata, 5–16 cm. longa, 1·6–4·3 cm. lata, rigide chartacea, mox glabra, subtus primo saltem ad costam crispatim puberula, supra viridia, subtus pallida, nervis lateralibus utrinque 10–15 supra conspicuis subtus prominentibus, nervulis utrinque conspicuis, margine integra, recurva, lateralia petiolulo 5–8 mm. longo primo puberulo suffulta, terminali a lateralibus 2–3 cm. distante. *Paniculae* ad 17 cm. (pedunculo communi ad 11·5 cm. longo incluso) longae; pedunculi partiales infimi 2–3 cm. longi, paniculam partialem circa 1 cm. longam et 1·5 cm. latam gerentes, pedunculis et rhachi puberulis; pedicelli vix 3 mm. longi, puberuli, basi bracteati. *Sepala* deltoidea, subacuta, 1·5 mm. longa, 1 mm. lata, extra parce pubescentia, intra parce puberula, ciliata. *Petala* oblonga, apice acutiuscula, 3·5 mm. longa, 1·5 mm. lata, extra densius puberula, intra breviter sparsius puberula. *Filamenta* ad 2·5 mm. longa, inferne vix ad medium connata, saltem longiora apice bidentata, extra parce sed conspicue pilosa, margine et intra pilosa, complanata, antheris 1 mm. longis apiculatis puberulis. *Discus* conspicuus, fere glaber. *Ovarium* immersum, cum stylo parce puberulum vel subglabrum.

Nan, Doi Pu Ka, 1200 m., evergreen forest, *Kerr* 4959.

Walsura pallida *Craib* [Meliaceae-Trichilieae]; frutex ramulis fere glabris, foliis 5–7-foliolatis, foliolis subtus pallidis distinctus.

Frutex ad 1 m. altus (ex *Kerr*); ramuli iuventute glabri vel pilis hic et illic sparse instructi, virides, angulati, mox omnino glabri, cortice rubro-brunneo vel cinereo-brunneo obtecti. *Folia* 5–7-foliolata, ad 25 cm. (petiolo ad 8·5 cm. longo incluso) longa, petiolo subterete vel superne cum rhachi late sulcato glabro; foliola oblonga, ovata, vel lanceolato-ovata, apice acute acuminata, basi interdum parum inaequilateralia, cuneata vel rotundata, 6–9·5 cm.

longa, 2·5–4·2 cm. lata, rigide chartacea, supra viridia, subtus pallida, iuventute subtus pilis paucis adpressis instructa, cito omnino glabra, nervis lateralibus utrinque 8–10 intra marginem anastomosantibus supra impressis subtus prominentibus, nervulis fere omnibus obscuris, integra, petiolulo 3–10 mm. longo supra canaliculato suffulta. *Paniculae* in ramis hornotinis racemosim dispositae, inferiores ex axillis foliorum delapsorum, superiores ex axillis foliorum iuvenilium ortae, glabrae, pedunculo communi ad 3 cm. longo glabro suffultae, 1 cm. longae, 1·5 cm. diametro, pedunculis partialibus usque ad 7 mm. longis, pedicellis 1–1·5 mm. longis basi articulatis, bracteis parvis. *Sepala* oblata, imbricata, circa 1·25 mm. longa et 1·75 mm. lata, pauperius ciliolata. *Petala* oblongo-elliptica, 4 mm. longa, 2–2·5 mm. lata, ciliolata. *Stamina* circa 3 mm. longa; filamenta inferne connata, apice bilobata, lobis antheras paululo superantibus vel saltem eis subaequialtis denticulatis, glabra vel saltem longiora pilis paucis sat rigidis infra antheras ipsas intra instructa. *Discus* glaber. *Ovarium* glabrum, disco immersum.

Dan Sai, Hui Nam Man, 600 m., deciduous forest, *Kerr* 5813.

Dichapetalum Kerrii *Craib* [Chailletiaceae]; ab affini *D. monosperma* Merrill ramulis et foliis iuvenilibus magis pubescentibus inter alia differt.

Arbor 6–7-metralis (ex *Kerr*); ramuli graciles, iuventute dense adpresse pubescentes, mox glabrescentes, cortice pallide brunneo plus minusve conspicue lenticellato obtecti. *Folia* oblongo-oblanceolata vel oblongo-elliptica, apice acuminata vel saepius caudato-acuminata, summo apice costa excurrente notata, saepe retusa, basi saepe inaequilateralia, cuneata vel acuminato-cuneata, 8·5–12 cm. longa, 2·5–4·8 cm. lata, chartacea vel rigide chartacea, sicco pallide viridia, costa supra adpresse hirsuta vel mox fere glabra, aliter glabra, subtus ad costam nervosque laterales pilis sat longis et rigidis plus minusve adpressis primo dense demum sparse instructa, nervis lateralibus utrinque 5–6 arcuatis vel oblique arcuatis supra gracilibus subprominulis subtus prominentibus, nervulis rete gracile supra parum conspicuum subtus prominulum efficientibus, iuventute ciliata, mox distanter ciliata, petiolo 3–4 mm. longo adpresse hirsuto suffulta; stipulae deciduae, subulatae, 5 mm. longae. *Cymae* in ramulis hornotinis gestae, axillares vel ex axillis foliorum delapsorum ortae, circa 7 mm. (pedunculo communi circa 2 mm. longo incluso) longae; pedicelli breves. *Sepala* exteriora oblongo-ovata, obtusa, 2·75 mm. longa, interiora oblonga, paululo longiora, dorso breviter adpresse pubescentia, ciliata. *Petala* ligulata, 3·5 mm. longa, apice 1 mm. lata, bilobata, glabra. *Stamina* petalis aequilonga, filamentis glabris complanatis, antheris circa 0·6 mm. longis. *Disci* glandulae 5, globosae, glabrae. *Pistillodium* dense albo-pilosum.

Nakawn Sawan, Mê Wong, 200 m., evergreen forest, *Kerr* 6036.

Mappia dimorpha *Craib* [Icacinaceae]; ab affini *M. cambodiana* Pierre foliis basi cuneatis, calycis lobis pro rata brevioribus, petalis longioribus recedit.

Arbor circa 10 m. alta (ex *Kerr*); ramuli iuventute adpresse hirsuto-pubescentes, annotini glabri vel glabrescentes, cortice stramineo longitudinaliter rugato obtecti, foliorum cicatricibus prominentibus. *Folia* inferiora subopposita, superiora alterna, elliptica vel oblongo-elliptica, apice angustata vel subacuminata, basi cuneata, ad 18 cm. longa et 8·7 cm. lata, membranacea, supra ad costam nervosque laterales pilis rigidis breviusculis crispatis densius tecta, aliter pilis similibus hic et illic instructa, subtus parum pallidiora, molliter pubescentia, nervis lateralibus utrinque 8–10 obliquis intra marginem anastomosantibus supra conspicuis subtus prominentibus, nervulis subtus prominulis, margine integra, ciliata, petiolo 3–5 cm. longo pubescente supra canaliculato suffulta. *Inflorescentia* terminalis, corymbosa, 10 cm. lata, pedunculo communi 8 cm. longo suffulta, adpresse crispatim pubescens, bracteis parvis, floribus pallide viridibus (ex *Kerr*) sessilibus vel breviter pedicellatis. *Calyx* 1·5 mm. longus, ad medium lobatus, dorso adpresse pubescens. *Petala* 4·5 mm. longa, 1·5 mm. lata, basi inter se leviter cohaerentia, extra adpresse pubescentia, intra basi excepta pilosa. *Filamenta* vix 3 mm. longa, vel interdum petala superantia, glabra; antherae vix 1 mm. longae. *Discus* brevis, ovarii basem cingens, glaber. *Ovarium* 1 mm. altum, dense pubescens, stylo 2 mm. longo glabro vel pistillo filamentis vix aequilongo.

Sukotai, 50 m., mixed deciduous forest, *Kerr* 5952.

Euonymus carinatus *Craib* [Celastraceae-Celastreae]; ab *E. cochinchinense* Pierre capsulae valvis dorso obtuse carinatis haud rotundatis recedit.

Ramuli primo sicco virides, canaliculati, parum compressi, mox teretes, cortice cinereo-brunneo obtecti, lenticellis prominulis. *Folia* oblonga, oblongo-oblanceolata vel elliptica, apice obtuse acuminata, basi cuneata vel late cuneata, 7·5–14 cm. longa, 3·3–6·7 cm. lata, chartacea vel coriaceo-chartacea, sicco viridia, subtus pallidiora, glabra, nervis lateralibus utrinque 6–7 intra marginem anastomosantibus pagina utraque gracilibus prominulis, nervulis laxis mox subtus prominulis et supra plus minusve conspicuis, margine inferne integra, apicem versus serrulata, petiolo circa 4 mm. longo supra conspicue canaliculato suffulta. *Cymae* axillares, pedunculo communi 3·5–6·5 cm. longo basi squamis ferrugineo-pilosis instructo suffultae; pedunculi partiales 13–22 mm. longi, pedicellis circa 4 mm. longis, omnibus glabris. *Sepala* 5, rotundata vel oblata, apice rotundata, 1–1·75 mm. longa, 1·75–3 mm. lata, fimbriato-ciliolata. *Petala* 5, suborbicularia vel oblata, basi in stipitem brevem latum angustata, circa 4 mm. longa, 3·75–5 mm. lata, denticulata vel auguste fimbriata. *Filamenta* brevia. *Ovarium* glabrum, apice 5-rugatum. *Capsula* ad 12 mm.

longa, apice concava, 12 mm. diametro, lobis 5 dorso obtuse carinatis.

Sriracha, Nawng Kaw, *Mrs. D. J. Collins* 153. Sriracha, Nawng Pru, Ban Dan railhead, evergreen forest, *Mrs. D. J. Collins* 842 (*type*).

Euonymus colonoides *Craib* [Celastraceae-Celastreae]; species *E. simili* Craib habitu similis sed foliis longius petiolatis, nervis lateralibus magis numerosis et magis prominentibus, floribus minoribus, *E. grandifloro* Wall. fructu similis sed fructu minus prominenter rugato, foliis maioribus haud obovatis differt.

Arbor circa 12–15 m. alta (ex *Kerr*); ramuli sicco iuventute pallide virides, glabri, parum compressi, anguste sed conspicue bicanaliculati, mox teretes, pallide brunneo-corticati, lenticellis rotundatis parum prominulis hic et illic verruculosi. *Folia* oblongo-lanceolata vel oblongo-elliptica, apice obtuse subacuminata, basi cuneata vel rotundato-cuneata, 9–16 cm. longa, 4–7 cm. lata, chartaceo-coriacea vel subcoriacea, sicco viridia, subtus pallidiora, glabra, nervis lateralibus utrinque 8–10 intra marginem sursum curvatis et anastomosantibus supra gracilibus prominulis subtus prominentibus, nervulis tantum paucis conspicuis, margine recurva, subintegra vel apicem versus paucidenticulata, petiolo ad 18 mm. longo supra canaliculato suffulta. *Cymae* pedunculo communi 2–4 cm. longo suffultae; pedunculi partiales 6-10 mm. longi, pedicellis 3–3·5 mm. longis, omnibus glabris sicco pallide viridibus. *Sepala* 1·5–2 mm. longa. *Petala* obovata, 3 mm. longa, 2·5 mm. lata, fimbriata. *Stylus* brevis. *Fructus* ellipsoideo-turbinatus vel subellipsoideus, apice truncatus, ad 1 cm. longus et apice 1·2 cm. diametro, glaber, plus minusve transverse corrugatus, anguste 5-alatus.

Doi Sutep, 1670 m., evergreen forest, *Kerr* 3194 (*type*). Doi Angka, 1500 m., evergreen forest, *Kerr* 6342.

Euonymus ligustrinus *Craib* [Celastraceae-Celastreae]; *E. Dielsiano* Loes. habitu valde similis sed petalis denticulatis, ab *E. attenuato* Wall. foliis haud integris recedit.

Frutex circa 4 m. altus (ex *Kerr*); ramuli glabri vel iuventute apice tantum pilis perpaucis cito deciduis instructi, primo bicanaliculati et parum compressi, cito teretes, virides. *Folia* lanceolata, apice obtuse acuminata et costa excurrente breviter apiculata, basi cuneata, 4–9 cm. longa, 1·5–3 cm. lata, primo chartacea, mox subcoriacea, glabra, nervis lateralibus utrinque circa 6 supra conspicuis vel subobscuris subtus tenuibus prominulis, nervulis obscuris, margine saltem superne plus minusve denticulata vel anguste serrulata, petiolo ad 5 mm. longo suffulta. *Cymae* axillares, 7-florae, pedunculo communi 1–2 cm. longo glabro viridi basi bracteis ferrugineo-pilosis circa 2 mm. longis angustis et apice bracteis duabus 1 mm. longis ferrugineo-pilosis instructo suffultae; pedunculi partiales 2–5 mm. longi, glabri; pedicelli 2 mm. longi,

glabri. *Sepala* ovato-oblata vel oblata, apice rotundata, circa 1·5 mm. longa et 2·5 mm. lata, ciliolata. *Petala* subrotundata, circa 3 mm. diametro, basi in stipitem latum angustata, margine fimbriato-denticulata, ciliolata. *Filamenta* brevia. *Ovarium* glabrum, apice 5-rugatum, stylo brevi.

Nakawntai, 200 m., evergreen forest, *Kerr* 5852.

Microtropis crassifolia *Craib* [Celastraceae-Celastreae]; species nova foliis parvis crassis, nervis lateralibus omnino vel fere omnino obscuris, capsula stylo persistente apiculata distincta.

Arbuscula 4–5 m. alta (ex *Kerr*), calyce excepto glabra; ramuli iuventute graciles, cito purpurascentes, angulati, demum cortice cinereo vel cinereo-purpureo obtecti. *Folia* oblongo-elliptica, lanceolata, vel subovata, apice obtuse breviter acuminata, basi acuminata, cuneata, vel late cuneata, 4–8 cm. longa, 1·4–4 cm. lata, crassa, subtus pallidiora, costa pagina utraque plus minusve prominente, nervis lateralibus saepissime omnino obscuris utrinque circa 6–8, margine integra, anguste recurva, petiolo 2–7 mm. longo supra canaliculato suffulta. *Capsulae* solitariae vel geminae, sessiles vel breviter pedunculatae, ad 1·8 cm. longae, virides vel purpureo-virides, stylo brevi persistente apiculatae, basi sepalis fimbriato-ciliatis late pallide marginatis cinctae; semina solitaria, rubro-arillata.

Chantabun, Kao Soi Dao, 1300 m., evergreen forest, *Kerr* 9665 (*type*). Korat, Kao Lêm, 1000 m., evergreen forest, *Kerr* 9923.

Celastrus approximata *Craib* [Celastraceae-Celastreae]; ab affinibus *C. stylosa* Prain et *C. Hindsii* Benth. nervulis multo magis approximatis recedit.

Ramuli glabri, primo virides, sulcati, basi squamosi, mox teretes, cortice rubro vel fusco-rubro obtecti, lenticellis haud conspicuis. *Folia* alterna, saepissime oblonga vel elliptica, apice acuminata, basi cuneato-rotundata, rarius cuneata vel rotundata, 7–15 cm. longa, 3–8 cm. lata, primo chartacea, demum coriacea, sicco subviridia, subtus pallidiora, nervis lateralibus utrinque 7–9 intra marginem longius sursum curvatis supra conspicuis subtus prominentibus, nervulis rete transverse elongatum pagina utraque mox prominulum efficientibus, margine recurva, serrulata, petiolo 5–10 mm. longo supra canaliculato suffulta. *Cymae* ex axillis novellis ortae, pedunculo communi incluso 10–15 mm. longae et ramulos novellos terminantes ubi paniculam racemiformem ad 4 cm. longam e cymis compositam formantes, rarius ex axillis vetustioribus ortae paniculam similem ad 5 cm. longam efficientes; pedunculus communis circa 5 mm. longus, pedunculis partialibus circa 2 mm. longis, pedicellis 2 mm. longis apice articulatis, omnibus glabris; flores virides (ex *Kerr*). *Calyx* vix 2 mm. longus, lobis imbricatis rotundatis ciliolatis. *Petala* 5, oblonga, apice rotundata, 3 mm. longa, 1·75 mm. lata, ciliolata. *Discus* brevis, pallidus, glaber. *Filamenta* pallida,

glabra, ad 0·5 mm. longa, antheris apiculatis filamentis paulo longioribus. *Stylus* brevis, crassus, stigmate stylo latiore 3-lobulato; ovarium 3-loculare, loculis 2-ovulatis.

Korat, Kao Lêm, 1100 m., evergreen forest, *Kerr* 9941.

Gymnosporia Marcanii *Craib* [Celastraceae-Celastreae]; a *G. Wallichiana* Lawson inter alia fructu multo minore recedit.

Arbor 3–5 m. alta; ramuli glabri, iuventute obtuse angulati, brunneo-corticati, mox teretes, cinereo-corticati, spinis rigidis 1–1·5 cm. longis armati. *Folia* obovata, apice saepissime emarginata, rarius rotundata, basi longius acuminato-cuneata vel cuneata, 3·5–9·5 cm. longa, 2·5–5·5 cm. lata, coriacea, glabra, nervis lateralibus utrinque circa 5 pagina superiore plus minusve conspicuis inferiore prominulis intra marginem anastomosantibus, margine serrulato-crenata vel crenulata, petiolo 3–10 mm. longo suffulta. *Cymae* axillares, fasciculatae, circa 1·5 cm. longae, pedunculo communi brevi vel ad 5 mm. longo glabro suffultae, bracteis 1·5 mm. longis fimbriato-ciliatis, pedicellis 3–5 mm. vel infructescentibus 8 mm. longis glabris paulo supra basem articulatis. *Sepala* ovata, obtusa, circa 1 mm. longa et lata, fimbriato-ciliolata, aliter glabra. *Petala* oblonga, apice rotundata, 4 mm. longa, glabra, apicem versus pauci-denticulata. *Filamenta* 2·5 mm. longa, glabra, basi complanata, antheris 0·75 mm. longis apiculatis. *Discus* carnosus, glaber. *Ovarium* vix 0·75 mm. longum, apice rotundatum vel subtruncatum, stigmatibus 3 brevibus. *Capsula* circa 8 mm. longa, 3-locularis, viridi-straminea, glabra, seminibus rubro-brunneis circa 5 mm. longis basi arillatis.

Hua Hin, 2 m., *Marcan* 393 (*type*). Korat, Chan Tûk, savannah, *Kerr* 8074.

Hippocratea pallida *Craib* [Hippocrateaceae]; species ramulis pallidis dense verruculosis, foliis parvis, inflorescentia plus minusve puberula distincta.

Frutex volubilis; ramuli glabri, primo fusco-brunnei et plus minusve verruculosi, mox substramineci vel saepius pallidi, dense verruculosi. *Folia* opposita, elliptico-ovata, subelliptica vel rarius suboblonga, apice breviter obtuse acuminata vel rotundata, basi interdum inaequilateralia, rotundata vel cuneata, 4–6·5 cm. longa, 2·4–3·8 cm. lata, chartacea vel coriaceo-chartacea, glabra, sicco viridia, nervis lateralibus utrinque circa 6 intra marginem anastomosantibus pagina utraque prominulis, nervulis paucis pagina utraque subprominulis, margine inconspicue distanter denticulata, petiolo 4–6 mm. longo supra canaliculato suffulta. *Cymae* vel axillares, circa 3 cm. (pedunculo communi circa 1·7 cm. longo incluso) longae vel saepissime in paniculam efoliatam ad 30 cm. longam ramulis oppositis 7–12 cm. longis dispositae, saltem pedunculis ultimis puberulis; pedicelli 1·5 mm. longi, densius puberuli; alabastra suboblonga, obtusa, circa 3·5 mm. longa; flores virides (ex *Kerr*). *Sepala* 5, sat crassa, circa 0·75 mm.

longa, extra puberula, ciliolata. *Petala* 5, oblongo-lanceolata, apice plus minusve cucullata, apiculata, 4·5 mm. longa, 2 mm. lata, breviter ciliolata, extra breviter sparse puberula, intra glabra. *Stamina* 3, filamentis 2 mm. longis complanatis glabris, antherarum loculis divergentibus. *Ovarium* 3-loculare, loculis 6–8-ovulatis.

Chaibadan, Dong Pya Yen, 100 m., evergreen forest, *Kerr* 8016.

Hippocratea puberula *Craib* [Hippocrateaceae]; species *H. dinhensi* Pierre habitu similis sed inflorescentia haud glabra distinguenda.

Frutex volubilis; ramuli glabri, primo parum complanati et conspicue bicanaliculati, subvirides, mox teretes, cortice cinereo-brunneo vel subfusco obtecti, lenticellis parvis rotundatis numerosis prominulis. *Folia* opposita vel subopposita, oblonga vel rarius ovato-oblonga, apice saepissime breviter obtuse acuminata, basi saepissime parum inaequilateralia, cuneata, rotundato-cuneata vel rotundata, 8–17 cm. longa, 4–8 cm. lata, chartaceo-coriacea vel mox coriacea, glabra, sicco subviridia, nervis lateralibus utrinque 6-9 intra marginem anastomosantibus supra conspicuis vel saepissime prominulis subtus prominentibus vel subprominentibus, nervulis pagina utraque conspicuis, margine serrulato-crenata, petiolo 10–15 mm. longo supra anguste sed altius canaliculato suffulta. *Cymae* paniculas ex axillis iunioribus ortas 4–5 cm. longas formantes; pedunculus communis 2·5–3 cm. longus, sulcatus, puberulus, apice bracteis duabus circa 1·5 mm. longis deciduis instructus; pedunculi partiales circa 8 mm. longi, crispatim puberuli; pedicelli 6 mm. longi, puberuli; flores virides (ex *Kerr*). *Sepala* 5, rotundato-deltoidea, obtusa, circa 1 mm. longa, paululo latiora quam longiora, sat crassa, dorso puberula, ciliolata. *Petala* 5, lanceolata vel oblongo-lanceolata, apice incrassata, cucullata, apiculata, ad 4·5 mm. longa, 2 mm. lata, extra densius puberula, intra sparse puberula vel subglabra. *Discus* vix 1·5 mm. altus, glaber, carnosus, plus minusve lobulatus. *Stamina* 3, filamentis complanatis circa 1 mm. longis, antherarum loculis divergentibus. *Pistillum* staminibus subaequialtum, glabrum; ovarium 3-loculare, loculis 8-ovulatis, ovulis biseriatis.

Mûang Pai, Hui Mê Na, 900 m., evergreen forest near stream, *Kerr* 5503.

Hippocratea sulcata *Craib* [Hippocrateaceae]; ab affini *H. Chesseana* Pierre foliis angustioribus, petiolo supra canaliculato, inflorescentia magis ramosa recedit.

Ramuli volubiles, iuventute crispatim puberuli, brunnei vel fusco-brunnei, pluri-sulcati et bicanaliculati, mox glabrescentes, cortice fusco vel cinereo obtecti. *Folia* lanceolata, apice obtuse acuminata, basi cuneata, 7–11 cm. longa, 2–3·7 cm. lata, coriacea, glabra, nervis lateralibus utrinque 8–10 intra marginem anastomosantibus pagina utraque gracilibus prominulis, nervulis rete

gracile pagina utraque prominulum efficientibus, margine anguste serrulato-crenata, inferne integra, petiolo 4–6 mm. longo supra canaliculato suffulta. *Cymae* paniculas ex axillis apicalibus ortas 3–6·5 cm. longas formantes; pedunculus communis ad 1 cm. longus, densius breviter ferrugineo-pubescens; pedunculi partiales utrinque 2–4, ad 1·5 cm. longi, similiter tecti; pedicelli usque ad 4 mm. longi, densius breviter griseo-pubescentes; flores virides (ex *Kerr*). *Sepala* 5, late deltoidea, obtusa, vix 1·5 mm. longa, 1·5 mm. lata, sat crassa, extra puberula, ciliolata. *Petala* oblongo-lanceolata, apice paulo incrassata, plus minusve cucullata et apiculata, 4 mm. longa, 2 mm. lata, ciliolata. *Discus* carnosus, apice parce breviter pilosus. *Stamina* vix 1·5 mm. alta, glabra, filamentis complanatis, antherarum loculis divergentibus. *Ovarium* 3-loculare, loculis 6-ovulatis.

Kaw Chang, Klawng Mayom, 30 m., common in evergreen forest, *Kerr* 6927.

Salacia socia *Craib* [Hippocrateaceae]; ab affini *S. viminea* DC. foliis crassioribus latioribus recedit.

Arbuscula circa 4 m. alta (ex *Kerr*); ramuli primo angulati, mox teretes, cortice cinereo vel brunneo-cinereo obtecti, lenticellis vix conspicuis. *Folia* opposita vel alterna, late lanceolata, oblongo-elliptica, vel oblongo-oblanceolata, apice plus minusve acuminata, obtusa, basi cuneata vel subacuminata, 5–7 cm. longa, 2·3–3·5 cm. lata, coriacea, sicco supra plus minusve fuscescentia, subtus pallide viridia, nervis lateralibus utrinque circa 7 intra marginem anastomosantibus supra conspicuis subtus subprominentibus, nervulis rete subtus prominulum efficientibus, margine subintegra vel saepissime distanter serrulata, petiolo 3–5 mm. longo supra canaliculato suffulta. *Flores* axillares, in ramulis annotinis gesti, 3–5-fasciculati, pedunculo communi haud evoluto, pedicellis ad 5 mm. longis suffulti. *Sepala* 5, late deltoidea, obtusa, 1 mm. longa, 1·25 mm. lata, ciliolata. *Petala* 5, rotundato-elliptica vel subquadrata, apice rotundata, 5 mm. longa, 4 mm. lata, dorso concava, marginibus inferne reflexa. *Stamina* 3, circa 1·5 mm. longa, filamentis complanatis, antherarum loculis divergentibus. *Discus* glaber, carnosus, 1·5 mm. altus. *Ovarium* glabrum, trigonum, e disco exsertum, 3-loculare, loculis 2-ovulatis.

Nakawn Panom, Ta Uten, 200 m., open forest, *Kerr* 8437.

Salacia viridis *Craib* [Hippocrateaceae]; species nova foliis sicco viridibus, pedunculo communi evoluto, staminibus 3, ovarii loculis 4-ovulatis distincta.

Frutex volubilis; ramuli iuventute virides, plus minusve complanati, mox teretes, sulcati, cortice brunneo vel fusco-brunneo obtecti, lenticellis parvis inconspicuis. *Folia* opposita, oblonga vel elliptica, apice breviter acuminata, obtusa, basi rotundato-cuneata vel subtruncata, 7–14 cm. longa, 3–6·5 cm. lata, rigide chartacea, sicco viridia, supra nitida, subtus pallidiora, nervis

lateralibus utrinque 7–8 supra conspicuis subtus prominentibus, nervulis pagina utraque prominulis, margine anguste recurva, petiolo 7–13 mm. longo supra anguste sed conspicue canaliculato suffulta; stipulae parvae, cito deciduae. *Cymae* in ramulis hornotinis gestae, axillares, pedunculo communi circa 5 mm. longo primo suberecto vel patulo mox reflexo suffultae; pedicelli 2–3 mm. longi, glabri; flores virides (ex *Kerr*). *Calyx* 4·5 mm. diametro, sepalis imbricatis inter se inaequalibus rotundatis 1·5–2·25 mm. latis ciliolatis. *Petala* diu persistentia, patula, 3 mm. longa, 3·5 mm. lata, fimbriato-ciliolata. *Discus* glaber. *Stamina* 3, filamentis brevibus complanatis. *Ovarium* glabrum, 3-angulatum, stylo brevi, loculis tribus 4-ovulatis.

Pitsanulok, Nakawntai, 400 m., mixed forest by stream, *Kerr* 8889.

Tetrastigma bambusetorum *Craib* [Ampelidaceae]; species nova foliis saepissime unifoliolatis basi cordatis, petalis corniculatis apicem versus tantum papillosis distincta.

Caules inferne radicantes, circa 30 cm. longi, glabri, sicco plus minusve fuscescentes, longitudinaliter striati, parce lenticellati. *Folia* saepissime unifoliolata, interdum trifoliolata, unifoliolata ovata vel oblongo-ovata, apice acuminata, mucronata, basi cordata vel rotundata, 9–18 cm. longa, 10·5–12·5 cm. lata, trifoliolata e foliolis oblongis vel terminali oblongo-oblanceolato vel obovato-oblanceolato apice caudato-acuminatis basi terminali rotundato vel obtuse cuneato lateralibus inaequilateralibus latere altero rotundato-truncato altero rotundato-cuneato vel cuneato 9–17 cm. longis 3·5–7 cm. latis, lateralibus petiolulo 1 cm. longo suffultis, terminali a lateralibus 1·4–2 cm. distante, constituta, omnia chartacea, glabra, subtus pallidiora, e basi 5–7-nervia, nervis basalibus a lateralibus haud distinctis, nervis lateralibus utrinque circa 10 supra conspicuis subtus prominulis, nervulis paucis pagina utraque conspicuis, margine distanter interdum crassius denticulata; petiolus 8·5–12 cm. longus; stipulae deciduae; cirrhi haud evoluti. *Pedunculus* communis 3–8·5 cm. longus, bracteis duabus in partes tres saepissime divisus, apice subumbellatim ramosus, inflorescentiam 2–6 cm. diametro gerens, puberulus vel inferne glabrescens, pedunculis partialibus 1–1·5 cm. longis cum pedicellis 5–7 mm. longis puberulis; alabastra oblonga, apice corniculata. *Calyx* patelliformis, 1·75 mm. diametro, interdum vix denticulatus, interdum sublobulatus, pauperius ciliolatus, aliter glaber. *Petala* 4, apice cucullata, dorso corniculata, 3·5 mm. longa, 1·5 mm. lata, apicem versus dorso minute papillosa. *Filamenta* 2·5 mm. longa, antheris 0·75 mm. longis, loculis basi liberis. *Discus* undulatus. *Ovarium* apice subtruncatum, glabrum; stylus cylindricus vel subconicus, 0·5 mm. longus.

Lôi, Chiengkan, 200 m., bamboo jungle by dry stream, *Kerr* 8804.

Tetrastigma tenue *Craib* [Ampelidaceae]; a *T. dubio* Planchon inflorescentia haud glabra, a *T. rupestre* Gagnep. foliolis subtus glabris et ovario haud in stylum attenuato recedit.

Caulis erectus, circa 15 cm. altus vel ramosus et scandens; ramuli glabri, primo angulati, sulcati, cortice brunneo vel cinereo-viridi obtecti, lenticellis parvis subprominulis haud conspicuis. *Folia* uni- vel tri- foliolata, unifoliolata ovata vel lanceolato-ovata, apice subacuminata, mucronulata, basi cuneata, rotundata vel late rotundata, 6·5–17 cm. longa, 3·3–13 cm. lata, acute serrata vel saepius etiam trilobata, trifoliolata e foliolis lanceolatis oblongo-lanceolatis vel oblanceolatis apice subacuminatis mucronatis basi terminali cuneato lateralibus inaequilateralibus, latere exteriore rotundatis interiore cuneatis vel attenuatis, 5–15·5 cm. longis 2–6·5 cm. latis serratis, lateralibus petiolulo 2–5 mm. longo suffultis, terminali a lateralibus 0·6–2·5 cm. distante constituta, omnibus chartaceis sicco viridibus glabris nervis lateralibus utrinque 7–11 arcuatis supra conspicuis subtus prominulis; petiolus 1·5–8 cm. longus, glaber, supra canaliculatus; stipulae deciduae. *Inflorescentia* axillaris, subcorymbosa, e basi ramosa vel pedunculo communi circa 1 cm. longo suffulta, ad 2·5 cm. longa et 4 cm. lata, basi bracteata; pedicelli 2–5 mm. longi, cum pedunculis puberuli. *Calycis* lobi deltoidei, inter se subaequales, extra puberuli. *Petala* oblonga, apice cucullata, dorso infra apicem corniculata, 2·5 mm. longa, 1·5 mm. lata, extra puberula, intra glabra. *Filamenta* 1 mm. longa, glabra; antherae minute sparse puberulae. *Discus* quadratus, 4-lobulatus, glaber. *Ovarium* apice truncato-rotundatum, stylo distincto circa 0·6 mm. longo, stigmate 4-lobato, lobulis patulis angustis.

Udawn, Pu, 200 m., climbing on undergrowth in evergreen forest, *Kerr* 8605.

Ampelocissus changensis *Craib* [Ampelidaceae]; species foliis simplicibus parviusculis integris vel saepissime trilobulatis distincta.

Frutex cirrhosus; ramuli primo arachnoidei et puberuli, mox plus minusve glabrescentes, striati, cortice brunneo obtecti, lenticellis paucis haud conspicuis. *Folia* simplicia, ambitu elliptica vel late ovata, apice obtusa vel acuta, apiculata vel mucronulata, basi late cuneata vel truncata, saepissime trilobulata, lobulis nisi terminali haud ultra 1 cm. longis, ad 8·5 cm. longa et 5·3 cm. lata, chartacea vel rigide chartacea, sicco supra plus minusve viridia, subtus cinnamomea, supra mox sparse arachnoidea et papilloso-puberula, subtus dense arachnoidea et ad nervos breviter pilosa, nervis lateralibus utrinque circa 7 supra plus minusve conspicuis subtus prominulis, nervulis obscuris vel interdum subtus conspicuis, margine denticulata, petiolo ad 3·5 cm. longo supra canaliculato indumento ei ramulorum simili tecto suffulta; stipulae deciduae; cirrhi apud infructescentiam lignosi, ramulis similes, apice furcati. *Infructescentia* oppositifolia,

pedunculo lignoso ad 8·5 cm. longo ramulis simili suffulta, densa, globosa, circa 3 cm. diametro; pedicelli 3 mm. longi, glabri, paucilenticellati; fructus atro-purpureus (ex *Kerr*), circa 1 cm. longus; semina 7·5 mm. longa, dorso rotundata, intra medio longitudinaliter carinata.

Mê Chang, 300 m., deciduous forest, *Kerr* 3609.

Ampelocissus rupicola *Craib* [Ampelidaceae]; ab affini *A. divaricata* Planchon foliis multo minoribus recedit.

Ramuli arachnoidei et puberuli, iuventute sulcati, mox teretes, cortice brunneo obtecti, lenticellis haud conspicuis. *Folia* trifoliolata, petiolo ad 3 cm. longo indumento ei ramulorum simili obtecto suffulta; foliola terminalia oblonga, late lanceolata vel late oblanceolata, lateralia inaequilateralia, latere exteriore dimidiatim ovata, basi rotundata, interiore dimidiatim oblanceolata, basi cuneata vel rotundato-cuneata, omnia apice mucronulata, ad 4·5 cm. longa et 2·5 cm. lata, rigide chartacea, sicco supra griseoviridia, subtus pallide cinnamomea, supra papilloso-puberula et parce arachnoidea, subtus dense arachnoidea et ad nervos breviter pubescentia, nervis lateralibus utrinque circa 6 subtus conspicuis, nervulis rete subtus plus minusve conspicuum efficientibus, margine irregulariter interdum conspicue interdum obsolete dentata, petiolulo ad 5 mm. longo suffulta, terminali a lateralibus ad 1 cm. distante; stipulae parvae, deciduae; cirrhi steriles iuventute integri, apud inflorescentiam apice biramosi. *Inflorescentia* densa, circa 8 mm. diametro, pedunculo communi 3·5 cm. longo etiam cirrhifero indumento ei ramulorum simili tecto suffulta; pedicelli circa 1 mm. longi, sparse pubescentes. *Calyx* 0·5–0·75 mm. longus, subtruncatus vel obsolete lobulatus, basi parce pubescens, superne glaber vel fere glaber, papilloso-ciliolatus. *Petala* 1·5 mm. longa, apice cucullata. *Filamenta* 0·75 mm. longa, glabra; antherae circa 0·4 mm. longae, paulo longiores quam latiores. *Discus* crenulatus. *Stigma* stylo brevi latius, circa 0·5 mm. diametro.

Sukotai, Kao Luang, 1000 m., trailing over rocks, *Kerr* 5942.

Cissus calcicola *Craib* [Ampelidaceae]; ab affini *C. repanda* Vahl ovario haud glabro distinguenda.

Ramuli iuventute dense cinnamomeo-tomentosi, mox glabri, cortice fusco-brunneo obtecti, teretes, longitudinaliter sulcati vel reticulato-sulcati. *Folia* iuvenilia rotundato-ovata, apice acute acuminata, basi altius cordata, ad 5·5 cm. longa et 4·2 cm. lata, subcrassa, supra primo dense cinnamomeo-pilosa, mox fuscescentia, sparsius ferrugineo-pilosa, subtus dense cinnamomeo-piloso-tomentosa, e basi 5-nervia, nervis secondariis (e costa ortis) utrinque 6 rectis ad marginem currentibus supra conspicuis subtus prominentibus, nervis transversis inter se parallelis sat numerosis supra parum impressis subtus prominulis, margine denticulata, petiolo circa 1·5 cm. longo indumento ei caulium simili obtecto suffulta.

Inflorescentia oppositifolia, corymbiformis, ad 6 cm. diametro, e cymis umbelliformibus ad 1·5 cm. diametro pedunculis ad 2 cm. longis suffultis constituta, pedunculo communi 3–4 cm. longo suffulta, partibus omnibus cinnamomeo-pilosa; pedicelli sub anthesin 4 mm. longi, mox circa 7 mm. longi. *Petala* 4, dorso brunneo-pilosa, 3 mm. longa, 1·5 mm. lata. *Filamenta* 2·5 mm. longa, antheris 1 mm. longis, connectivo intra parum incrassato. *Ovarium* apice pilosum; stylus 0·75 mm. longus, glaber.

Pang Pui, 540 m., growing over limestone rocks, *Kerr* 3175.

Cissus dissecta *Craib* [Ampelidaceae]; a *C. Craibii* Gagnep. indumento partium omnium breviore, foliorum lobis angustioribus recedit.

Caules e radice perenni annui, erecti, graciles, 19–40 cm. alti, vel (ex *Marcan*) etiam volubiles, iuventute densius crassius crispatim puberuli, demum glabri, sulcati. *Folia* palmatim 5–7-lobata, ad 10 cm. longa et 12 cm. lata, membranacea vel chartaceo-membranacea, subtus pallidiora, supra setulis brevibus albis sparsis sed margines versus magis numerosis instructa, subtus ad nervos setulosa, margine setuloso-ciliata, lobis lanceolatis oblanceolatis vel linearibus usque ad 8·5 cm. longis et 3 cm. latis angustioribus dentatis vel lobulatis latioribus pinnatim lobulatis, lobulis integris vel plus minusve serratis, costis supra conspicuis subtus prominulis, nervis lateralibus utrinque circa 5 subtus conspicuis, petiolo 1·5–4·8 cm. longo subtus striato indumento ei caulis simili tecto suffulta; stipulae 3 mm. longae, brunneae, medio fusco-umbonatae, puberulae. *Cymae* oppositifoliae, pedunculo communi 1–2·8 cm. longo suffultae, 1–3 cm. diametro, pedunculis partialibus 7–9 mm. longis, pedicellis 2–3 mm. longis, et pedunculis et pedicellis puberulis; flores lutei (ex *Marcan*). *Calyx* circa 0·5 mm. longus, 4-lobulatus, dorso puberulus. *Petala* 4, sub anthesin libera, vix 2 mm. longa, 1 mm. lata, dorso papillosa, medio apicem versus pauci-setulosa. *Antherae* circa 0·5 mm. longae, connectivo facie interiore gibboso; filamenta 1 mm. longa. *Discus* crenulatus. *Ovarium* glabrum.

Ratburi, under 50 m., deciduous forest, *Kerr* 9008 (***type***). Kanburi, 70 m., open jungle on rocky hillside, *Marcan* 932.

Cissus Marcanii *Craib* [Ampelidaceae]; a *C. vitiginea* Planchon foliorum lobis longioribus angustioribus inter alia distinguenda.

Ramuli herbacei, primo densius hirsuti, mox sparse hirsuti, striati, sicco substraminei. *Folia* ovata vel ambitu rotundata vel subquadrata, apice angustata, summo apice mucronata, basi cordata, cordato-truncata vel subtruncata, saepissime conspicue sed haud alte 3-lobata, rarissime haud lobata, 6·5–9 cm. longa, 5–8 cm. lata, chartacea, sicco viridia, pagina superiore ad costam nervosque sparse hirsuta, aliter pilis brevioribus albis sparse instructa, inferiore ad costam nervos nervulosque similiter sed paulo longius hirsuta, e basi 3–5-nervia, nervis secondariis (e

costa ortis) utrinque 4–5, omnibus supra pallidis conspicuis subtus prominulis ad marginem currentibus, nervis transversis inter se parallelis subtus conspicuis, margine mucronato-denticulata, petiolo 3–6 cm. longo indumento ei ramulorum simili tecto suffulta; stipulae oblongae, 2·5 mm. longae; cirrhi apice furcati. *Cymae* oppositifoliae, saepissime ramulis brevibus lateralibus foliis reductis gestae, ad 2 cm. (pedunculo communi ad 1·5 cm. longo excluso) longae et vix 2 cm. diametro, pedunculis partialibus circa 5 mm. longis, omnibus indumento ei ramulorum simili instructis; pedicelli graciles, circa 2 mm. longi, basi articulati, breviter sparse pubescentes; bracteae parvae; alabastra pyramidalia, obtusa, breviter sparse pubescentia; flores lutei (ex *Marcan*). *Calyx* vix 1 mm. longus, viridis, extra parce pubescens, lobis 4 brevibus rotundatis vel deltoideo-rotundatis. *Petala* 4, oblongo-deltoidea, apice cucullata, 1·75 mm. longa, 1·25 mm. lata, dorso parce pubescentia. *Filamenta* 1 mm. longa, glabra; antherae 0·5 mm. longae, paulo longiores quam latiores, connectivo facie interiore incrassato. *Discus* crenulatus, ovarium paululo superans. *Stylus* staminibus brevior.

Kanburi, 40 m., open jungle, *Marcan* 882.

Leea dentata *Craib* [Leeaceae]; species foliis simpliciter pinnatis, foliolis maiusculis grossius dentatis, acumine dentibus haud longiore, floribus rubro-purpureis distincta.

Frutex ad 3 m. altus (ex *Kerr*); ramuli iuventute puberuli vel breviter sparse pilosuli, striati, sicco sub-brunnei, circa 8 mm. diametro. *Folia* pinnata vel in exemplo unico apud inflorescentiam unifoliolata, ad 42 cm. (petiolo 10–12·5 cm. longo incluso) longa, petiolo supra basi concavo superne terete vel supra canaliculato, rhachi supra plus minusve latius canaliculato, ambobus striatis; foliola 7, rarius solitaria, oblonga, oblongo-elliptica vel oblongo-obovata, basi cuneato-rotundata vel cuneata, apice acumine dentibus aequilongo instructa, 12–19 cm. longa, 5·5–12 cm. lata, rigide chartacea, sicco supra fusco-brunnea, subtus brunnea, nervis lateralibus basem versus pagina superiore puberulae costa pagina inferiore apud nervorum lateralium bases puberula, aliter glabra, nervis lateralibus utrinque 10–12 rectis supr, prominulis subtus prominentibus, nervis transversis inter sa parallelis pagina superiore conspicuis inferiore prominulis, margine grossius irregulariter dentata vel inferne interdum etiam lobulata. nervis lateralibus in dentes excurrentibus, petiolulo valido 5–10 mm, longo supra canaliculato suffulta, terminali usque ad 2·5 cm. a lateralibus distante; stipulae deciduae, cicatrice circa 3·5 cm. longa. *Inflorescentia* subcorymbosa, 10–12 cm. diametro, 4–6 cm. (pedunculo communi ad 8 cm. longo excluso) longa, ramis oppositis vel rarius subverticillatis inferioribus patulis vel oblique erectis superioribus oblique erectis; flores rubro-purpurei (ex *Kerr*), subsessiles. *Calyx* cum receptaculo circa 2·5 mm. longus, lobis brevibus apice obtusiusculis. *Petala* 5, superne incrassata, apice

cucullata, 2·5 mm. longa, 1·5 mm. lata. *Coronae* lobi oblongi, apice emarginati, 1·5 mm. longi. *Antherae* 1·25 mm. longae, connectivo lato rubro. *Stylus* 2·75 mm. longus.

Chiengmai, 300 m., scrub jungle, *Kerr* 3294.

Leea expansa *Craib* [Leeaceae]; ab affini *L. umbraculifera* C.B. Clarke foliolis maioribus facile distinguenda.

Frutex caule simplice circa 3 m. alto (ex *Kerr*) iuventute pruinoso lenticellis mox subconspicuis. *Folia* bi- vel tri-pinnata, circa 60 cm. (petiolo circa 20 cm. longo incluso) longa; pinnae 1–2-iugae, 3–5-foliolatae, inferiore interdum iterum pinnata 3-foliolata; foliola lanceolata, oblongo-lanceolata, rarius subovata vel elliptica, apice longius acuminata, summo apice mucronulata, basi cuneata vel late cuneata, 5·5–21 cm. longa, 2·3–6·5 cm. lata, chartacea vel rigide chartacea, sicco plus minusve brunnescentia, subtus pallidiora, glabra, nervis lateralibus utrinque 6–12 arcuatis intra marginem anastomosantibus pagina utraque gracilibus prominulis, nervis transversis inter se parallelis obliquis pagina utraque subprominulis, margine subregulariter serrata, petiolulo 5–18 mm. longo supra canaliculato sicco pluri-sulcato suffulta, terminali a lateralibus 3–4·5 cm. distante; stipulae deciduae, cicatrice circa 2 cm. longa. *Inflorescentia* corymbosa, pedunculo communi 5 cm. longo incluso circa 18 cm. longa, 30 cm. diametro, pedunculis partialibus 2 oppositis 4·5–11 cm. longis iterum ramosis cum pedunculo communi sicco plus minusve angulatis vel sulcatis; flores puniceo-albi (ex *Kerr*), breviter pedicellati. *Calyx* cum receptaculo 2 mm. longus, glaber, lobis brevibus apice rotundatis glandula notatis. *Petala* 5, lanceolata, apice cucullata, 3 mm. longa, fere 2 mm. lata. *Coronae* lobi oblongi, 2·5 mm. longi, 0·75 mm. lati, apice rotundati, subintegri vel parum retusi, superne medio interne incrassati. *Antherae* 1·5 mm. longae, connectivo lato rubro. *Stylus* 1·5 mm. longus.

Kaw Chang, 100 m., evergreen forest, *Kerr* 9236.

Leea Schomburgkii *Craib* [Leeaceae]; a *L. sambucina* Willd. foliolis grosse serratis vel dentatis, nervis lateralibus in dentes excurrentibus, floribus rubris recedit.

Caulis (vel *ramulus* ?) glaber, iuventute substramineus vel subfuscus, striatus vel substriatus, ad 8 mm. diametro. *Folia* pinnata vel bipinnata vel apud inflorescentiam unifoliolata, petiolo 8–12 cm. longo incluso ad 44 cm. longa, rhachi saltem superne supra canaliculato, glabra; folia pinnata 7-foliolata; folia bipinnata, pinnis uni-iugis 5–7-foliolatis 19–30 cm. (petiolo 1–2·5 cm. longo incluso) longis; foliola saepissime oblonga, apice acuminata, basi late cuneata vel rotundata, 8–21 cm. longa, 2–6·5 cm. lata, rigide chartacea vel subcoriacea, sicco brunnea, subtus parum pallidiora, costa pagina utraque sicco prominente superiore subacuta inferiore subalata, nervis lateralibus utrinque 8–12 supra gracilibus subprominulis subtus prominulis vel prominentibus sicco saepe

angulatis rectis vel subrectis in dentes excurrentibus, nervulis inter se parallelis transversis supra conspicuis vel subprominulis subtus prominulis, margine grossius crenato-serrata vel dentata, interdum inferne lobulata, petiolulo 1–7 mm. longo suffulta, terminali a lateralibus ad 2·5 cm. distante. *Corymbi* et terminales et axillares, 10·5–15 cm. (pedunculo communi 7–11 cm. longo incluso) longi, 9–15 cm. diametro, ramulis saepissime oblique adscendentibus 3–6·5 cm. longis cum pedunculis sicco sulcatis plus minusve puberulis; flores subsessiles, sicco corallini. *Calyx* cum receptaculo circa 3 mm. longus, lobis apice rotundatis. *Petala* 5, oblonga, apice incrassata, cucullata, 3–3·5 mm. longa, 1·5–1·75 mm. lata. *Corona* 1·5 mm. alta, lobis quadrato-oblongis apice parum recurvis emarginulatis.

Anghin, *Schomburgk* 256 (*type*). Sriracha, 30 m., *Mrs. D. J. Collins* 427.

Leea tenuifolia *Craib* [Leeaceae]; a *L. Mastersii* C. B. Clarke cui maxime affinis inflorescentia dense aequaliter puberula recedit.

Caules ad 1 m. alti (ex *Kerr*), sulcati, glabri. *Folia* bipinnata (an semper ?), circa 50 cm. (petiolo 12 cm. longo incluso) longa, petiolo cum rhachi sulcato; pinnae uni-iugae, 24 cm. longae, 5-foliolatae, terminali 3-foliolata a lateralibus circa 10 cm. distante; foliola oblonga, ovata vel elliptica, ad 20 cm. longa et 12 cm. lata, basi lateralia rotundata vel truncata, saepe inaequilateralia et cordatula, membranacea, sicco viridia, subtus pallidiora, supra ad costam nervosque laterales, aliter mox sparse, setosa, subtus ad costam nervos nervulosque similiter setosa, nervis lateralibus utrinque 11–14 supra conspicuis subtus prominentibus ad marginem currentibus, nervis transversis inter se parallelis sat numerosis subtus prominulis, margine irregulariter serrato-crenata, petiolulo ad 2 cm. longo suffulta, terminali a lateralibus 4·5–6 cm. distante; stipulae deciduae. *Corymbi* pedunculo communi 15 cm. longo suffulti, ad 14 cm. diametro, partiales 5·5 cm. diametro pedunculo 5 cm. longo suffulti, pedunculis sulcatis ferrugineo-pubescentibus vel partialibus superne rubescentibus; pedunculi ultimi et pedicelli rubri, densius puberuli; flores rubri, pedicellis brevibus basi articulatis suffulti. *Calyx* vix 2 mm. longus, extra papilloso-puberulus vel subglaber, lobis 5 deltoideis subacutis 0·75 mm. longis. *Petala* 5, apice incrassata, parum concava, apiculata, dorso parce glandulosa. *Disci* lobi anguste oblongi, apice retusi vel subtruncati, intra medio apice parum carinati. *Ovarium* glabrum, lobulatum, stylo pallido 0·75 mm. longo.

Korat, Chan Tûk, Kao Sisiat A, 300 m., bamboo forest on limestone hill, *Kerr* 9114.

Allophylus betongensis *Craib* [Sapindaceae-Sapindeae]; ab *A. chartacea* Radlk. petiolo breviore, foliis subintegris recedit.

Frutex c. 50 cm. altus (ex *Kerr*); ramuli primo puberuli, mox glabri, cortice cinereo vel brunneo-cinereo obtecti. *Folia* uni-

foliolata, rarissime 3-foliolata, petiolo 10–25 mm. longo puberulo supra late haud alte canaliculato apice stipellis duabus deciduis instructo suffulta; foliola oblongo-oblanceolata, apice acuminata, basi saepe inaequilateralia, rotundata vel cuneata, usque ad 27·5 cm. longa et 10·5 cm. lata, chartacea, subtus pallidiora, matura glabra vel subtus ad costam puberula, nervis lateralibus utrinque 10–12 cum costa supra prominulis subtus prominentibus, nervulis supra plus minusve conspicuis subtus prominulis, margine apicem versus pauci-denticulata. *Inflorescentia* axillaris, racemiformis, 5–8·5 cm. longa, pedunculo communi 5–10 mm. longo cum rhachi pluri-sulcato puberulo suffulta; pedicelli 1·5 mm. longi, puberuli; alabastra depresso-globosa, puberula. *Sepala* 4, inter se inaequalia, exteriora minora, concava, elliptica, interiora maiora, plana, subrotundata, 1·5–2 mm. longa, 1·25–1·75 mm. lata, extra puberula, intra glabra, ciliolata. *Petala* cuneata, 1·75 mm. longa, 1·25 mm. lata, apice parum retusa, squamis pilosis instructa, margine inferne piloso-ciliata. *Disci* lobi extra glabri, intra irregulariter sparse puberuli. *Stamina* 8, antheris 0·5 mm. longis, filamentis 1·75 mm. longis pilosis.

Pattani, Betong, 400 m., evergreen forest, *Kerr* 7665.

Otophora siamensis *Craib* [Sapindaceae-Sapindeae]; ab affini *O. furcata* Pierre petiolis pedicellisque multo brevioribus facile distinguenda.

Frutex vel *arbor* 3–4-metralis (ex *Kerr* et *Marcan*); ramuli sparse breviter pubescentes vel puberuli, pallide brunneo-corticati. *Folia* pinnata, 56–67 cm. (petiolo communi 10·5–18 cm. longo incluso) longa, petiolo subterete, rhachi superne angulato vel subalato, ambobus striatis et puberulis; stipulae obliquae, ovatae vel subellipticae, obtusae vel breviter obtuse acuminatae, ad 3 cm. longae et 2 cm. latae, saepe divisae, inferne puberulae, sessiles; foliola 19–23, alterna vel subopposita, lanceolata vel anguste lanceolato-oblonga, apice acuminata vel subacuminata, basi inaequilateralia, latere altero angustata vel saepius acuminata, altero rotundata vel truncata, 5·5–22·5 cm. longa, 2–5 cm. lata, chartacea, sicco plus minusve fusca, subtus pallidiora, glabra, nervis lateralibus utrinque ad 18 bene intra marginem anastomosantibus supra conspicuis subtus prominentibus, nervulis rete supra saepe conspicuum subtus prominulum efficientibus, integra, sessilia vel petiolulo crasso circa 1 mm. longo suffulta. *Panicula* infra folia orta, circa 52 cm. (pedunculo communi 5 cm. longo incluso) longa, ramis inferioribus ad 40 cm. longis, iuventute puberula, mox omnino glabra; flores rubri (ex *Kerr*), e ramulis ultimis 1–2 mm. longis orti, pedicellis 4 mm. longis glabris suffulti. *Sepala* 4, oblongo-elliptica vel obovata, ad 4 mm. longa et 3 mm. lata, ciliolata. *Petala* oblonga vel subquadrato-oblonga, 2·5–3 mm. longa, 2–2·5 mm. lata, basi latere utroque auriculata, extra basi pilis paucis instructa, praesertim inferne ciliata. *Antherae* 2 mm. longae, filamentis brevibus. *Fructus* plus minusve globosus,

saepe compressus, ad 1·2 cm. diametro, pedicello ad 7 mm. longo suffultus.

Krat, Kao Saming, under 20 m., evergreen forest, *Kerr* 9401 (*type*). Kaw Chang, 2 m., stream bank, *Marcan* 1271.

Turpinia robusta *Craib* [Staphyleaceae]; species a *T. trifoliata* Ridl. partibus omnibus magis robusta, floribus magis globosis distinguenda.

Arbor circa 8 m. alta (ex *Kerr*); ramuli glabri, mox teretes, substriati, cortice rubro-brunneo obtecti, lenticellis haud conspicuis. *Folia* opposita, suprema patula, trifoliolata vel in folio unico 4-foliolata, petiolo 2–4·5 cm. longo supra anguste canaliculato vel parte mediana terete glabro suffulta; foliola oblonga, oblongo-elliptica vel oblongo-obovata, apice acuminata, basi cuneata vel subacuminata, usque ad 13 cm. longa et 6 cm. lata, coriacea vel chartaceo-coriacea, subtus pallidiora, glabra, nervis lateralibus utrinque circa 10 late arcuatis intra marginem anastomosantibus supra conspicuis vel subprominulis subtus prominulis, reticulatione supra conspicua vel subobscura subtus plus minusve conspicua, margine denticulato-serrata vel crenato-serrata, petiolulo 3–10 mm. longo supra canaliculato apice biglanduloso suffulta, terminali a lateralibus 8–25 mm. distante. *Paniculae* ex axillis superioribus ortae, pedunculo communi incluso 8–15 cm. longae, 7–11 cm. diametro; pedunculus communis 0·7–4 cm. longus, apice bracteis duabus latis circa 2·5 mm. longis deciduis instructus, glaber; pedunculi ultimi et pedicelli puberuli; pedicelli 1–1·75 mm. longi. *Sepala* 5, subelliptica vel elliptico-obovata, apice rotundata, circa 1·75 mm. longa et 1·5 mm. lata, ciliolata. *Petala* 5, obovata, apice rotundata, 2 mm. longa, 1·5 mm. lata, ciliolata. *Stamina* 5, glabra, filamentis 1·5 mm. longis inferne ampliatis complanatis apice tenuibus; antherae circa 0·75 mm. longae. *Discus* brevis, apice plus minusve denticulatus. *Ovarium* disco subaequialtum, stylis brevibus; stigmata 3, apice subplana, inter se cohaerentia.

Mûang Fang, Doi Pahom Pok, 1400–1600 m., common in evergreen forest, *Kerr* 5178.

Rhus fulva *Craib* [Anacardiaceae-Anacardieae]; species foliolis 6-iugis subtus dense fulvo-tomentosis distinguenda.

Arbor c. 10 m. alta (ex *Kerr*); ramuli crassi, primo ferrugineo-tomentosi, crasse angulati, ad 1 cm. diametro. *Folia* pinnata, petiolo 17 cm. longo incluso circa 70 cm. longa, et petiolo et rhachi tenuiter ferrugineo-pilosulis, petiolo supra inferne plano, rhachi supra plus minusve canaliculato, ambobus striatis; foliola 6-iuga, opposita, oblonga, apice acuminata, acuta, basi parum inaequilateralia, rotundata vel truncata vel suprema late cuneata, ad 16 cm. longa et 5 cm. lata, chartacea, supra sicco viridia vel brunnescentia, ad costam breviter pubescentia, aliter iuventute puberula, matura puberula vel fere glabra, subtus dense fulvo-tomentosa sed ad costam plus minusve glabrescentia, nervis lateralibus utrinque

circa 25 supra mox parum impressis subtus conspicuis, nervulis rete gracile supra mox impressum subtus conspicuum efficientibus, integra vel obsolete denticulata, superiora sessilia, inferiora petiolulo 1–2 mm. longo suffulta, terminali a lateralibus 2·3 cm. distante. *Panicula* axillaris, pedunculo communi 12–20 cm. longo incluso 22–33 cm. longa, thyrsiformis, et pedunculo et rhachi primo dense fulvo-tomentosis mox plus minusve glabrescentibus, bracteis deciduis inferioribus linearibus ad 17 mm. longis, floribus densis sessilibus vel subsessilibus. *Sepala* 5, oblonga vel late ovata, 0·5 mm. longa, dorso parce pilosa vel subglabra. *Petala* oblonga, sepalis paululo longiora, glabra.

Doi Chiengdao, 1300 m., open evergreen forest, *Kerr* 5605. The collection is in very young bud.

Rhus rhetsoides *Craib* [Anacardiaceae-Anacardieae]; species ramulis crassis iuventute fuscis conspicue lenticellatis, foliis pinnatis glabris, foliolis integris petiolulatis distincta.

Arbor c. 10 m. alta (ex *Kerr*); ramuli novelli crassi, fusci, plus minusve glauci, angulati, saepissime conspicue et copiose lenticellati, parce pilosi, cito glabri, annotini cortice cinereo-brunneo obtecti, usque ad 1 cm. diametro. *Folia* pinnata, petiolo 9–13·5 cm. longo incluso 30–35 cm. longa, glabra, petiolo basi supra plano superne subterete vel supra subplano angulato vel subalato, rhachi terete sulcato vel supra canaliculato; foliola 4–5-iuga, opposita, oblongo-lanceolata, oblonga vel rarius ovata, apice longius acute acuminata, basi truncata, rotundata vel cuneata, saepe acuminata, ad 17 cm. longa, 4·5–6·5 cm. lata, chartacea vel chartaceo-coriacea, nervis lateralibus utrinque 15–20 supra conspicuis subtus plus minusve prominulis, nervulis laxis supra vix conspicuis subtus plus minusve conspicuis, integra, petiolulo circa 6 mm. longo supra conspicue canaliculato subalato suffulta. *Paniculae* ex axillis foliorum hornotinorum ortae, 15–18 cm. (pedunculo communi circa 4 cm. longo incluso) longae, glabrae; flores virides (ex *Kerr*); pedicelli 2·5 mm. longi. *Sepala* 5, oblongo-ovata, apice rotundata, 1 mm. longa, 0·75 mm. lata. *Petala* 5, elliptico-oblonga vel subelliptica, 2 mm. longa, 1·25 mm. lata, costa dorso conspicua. *Filamenta* glabra, vix 1 mm. longa, antheris oblongis vix 0·75 mm. longis. *Discus* brevis, margine undulatus. *Ovarium* stylo subaequilongum, 0·75 mm. altum, glabrum, uniloculare, stylis ad medium connatis; stigmata 3, brevia; ovulum solitarium, horizontale, funiculo basali.

Mûang Fang, Doi Pahom Pok, 1100 m., evergreen forest, *Kerr* 5169.

Gluta obovata *Craib* [Anacardiaceae-Anacardieae]; ab affini *G. tavoyana* Wall. ex Hook. f. inflorescentiae indumento crassiore inter alia recedit.

Arbor circa 10 m. alta (ex *Kerr*); ramuli iuventute angulati, densius molliter fulvo-tomentelli, mox cortice cinereo-brunneo

obtecti. *Folia* oblongo-obovata, oblanceolata vel obovata, apice obtusa, breviter obtuse acuminata, vel rotundata, interdum retusa, basi cuneata, 8–23 cm. longa, 3·7–11·2 cm. lata, subcoriacea, sicco plus minusve brunnescentia, subtus pallidiora, matura glabra, iuniora praesertim pagina inferiore basem versus puberula, nervis lateralibus utrinque 16–18 intra marginem anastomosantibus supra subprominulis subtus prominentibus, nervulis supra conspicuis subtus prominulis, margine integra, petiolo 1–2·5 cm. longo supra late canaliculato vel fere subalato indumento ei ramulorum simili tecto suffulta. *Paniculae* axillares, foliis saepius breviores vel ea interdum aequantes, densius fulvo-puberulae; pedicelli 1·5 mm. longi, puberuli. *Calyx* spathaceus, unilateraliter rumpens, apice haud lobatus vel saepissime 2-lobatus, 4·5 mm. longus, extra puberulus, intra glaber, ciliatus. *Petala* ad 6·5 mm. longa, basi ad 1·5 mm. ad axem floralem adnata, dorso inferne ad costam nervosque puberula, intra inferne, basi excepta, papillosa. *Stamina* 5, filamentis 3·5 mm. longis teretibus pallidis glabris. *Ovarium* glabrum, 1 mm. altum, ovulo solitario e summo funiculo basali suspenso.

Chiengmai, Mê Kang, 390–1230 m., deciduous and evergreen forest, *Winit* 1291 (*type*). Chawm Tawng, Mê Kang, 600 m., deciduous forest by stream, *Kerr* 5354.

XLII.—A NEW GENUS FROM UGANDA.—J. Hutchinson and J. E. Dandy.

A collection of plants made in Uganda by Mr. J. D. Snowden in 1924–5 contains an interesting specimen which proves to belong to a new genus of the *Polygonaceae*. This collection was gathered on Mount Elgon, and the habitat of the plant in question is described by Mr. Snowden as "undergrowth in the forest at an altitude of 1800–2100 metres."

The plant is a climbing herb, and is remarkable on account of its fruits. These are rather large, and for the purpose of their distribution by animals are provided with numerous barbed setae. In the flower these appendages are first observable as minute papillae, resembling beads, arranged in two rows along each angle of the trigonous ovary (fig. D, E). As the fruit matures the papillae grow out into long purple setae, each of which is armed at the tip with several backwards-directed barbs arranged in a radiate manner (fig. G). These barbed appendages are reminiscent of those of the fruits of *Torilis gracilis* Engl., *Harpagophytum*, and *Bidens*, and probably serve the same purpose. In *Bidens*, however, the grapples represent a modified pappus, whereas in the new genus they are of a different morphological nature, being emergences from the ovary-wall which do not correspond to any feature general in the rest of the *Polygonaceae*. Some members of the latter family possess "fruits" which at first sight

appear to resemble those of Snowden's plant. The resemblance, however, is only superficial, for in these cases (e.g. *Rumex nepalensis* Spreng., *R. Brownii* Campd., etc.) the setae are simply hooked, not radiately barbed, and adorn the margins of the persistent *calyx-lobes* which enclose the true fruit.

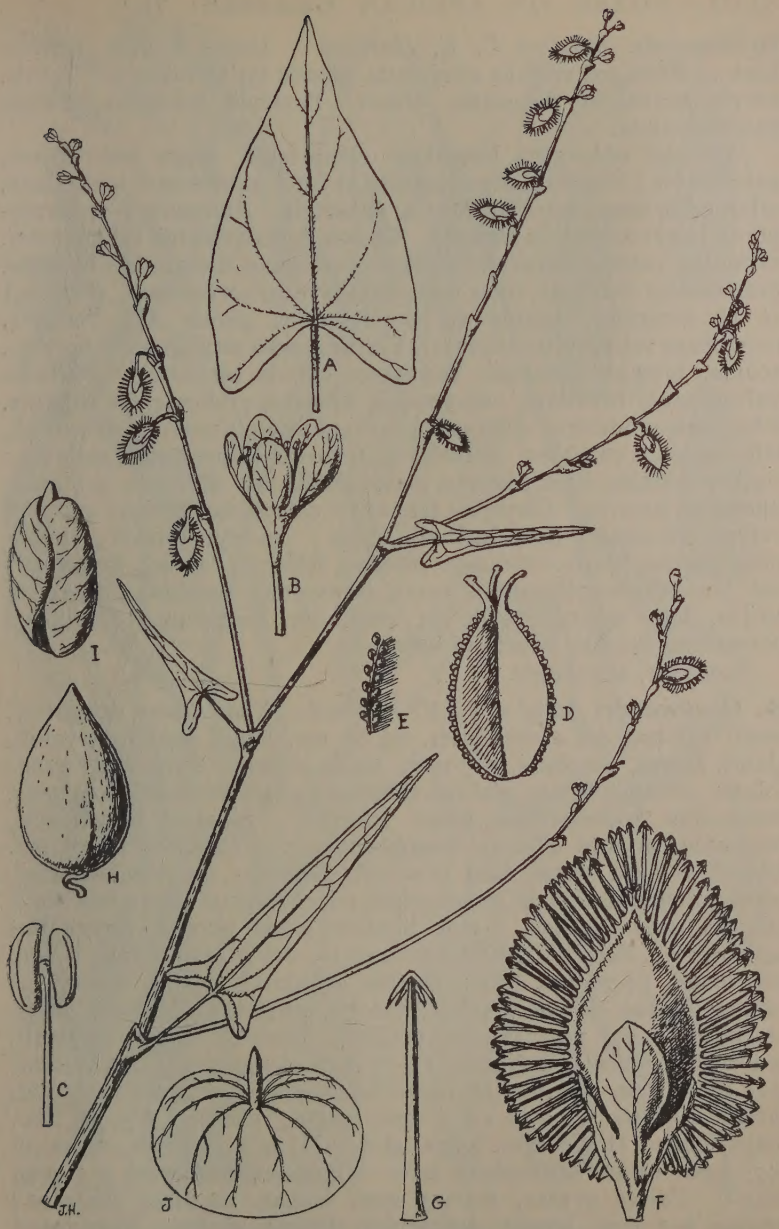
The new genus finds its closest affinities in the genera *Polygonum* and *Fagopyrum* of the tribe *Eupolygoneae*. It differs from both in the armed nature of the fruit, and from *Polygonum* also in the very broad cotyledons and in the nut being much exserted from the persistent calyx. In the last-mentioned two characters the plant agrees with *Fagopyrum*, which it still further resembles in the shape and venation of the leaves.

Harpagocarpus *Hutch. & Dandy*, genus novum inter genera *Eupolygonearum* ob fructus magnos e calyce longe exsertos, angulis setis numerosis longis apice stellato-hamatis armatos, valde distinctum.

Harpagocarpus Snowdenii *Hutch. & Dandy*, sp. nov.

Herba scandens; caules teretes sed leviter et crebre costati, glabri, internodiis usque ad 12 cm. longis. *Folia* sagittata, inferiora ovato-triangularia acute acuminata ad 8 cm. longa et 3 cm. lata, superiora angustiora lineari-lanceolata, integra, tenuiter chartacea, basi digitate 7–nervia, supra viridia glabra, infra pallidiora et tenuiter reticulata costa nervisque setosis exceptis glabra; petioli gracillimi, brunnescentes, 5 cm. attingentes; ochreae membranaceae, oblique truncatae, circiter 0·5 cm. longae, glabrae. *Flores* in racemis axillaribus terminalibusque gracilibus usque ad 15 cm. longis glabris dispositi; pedicelli 1–2-nati, ad 2 mm. longi, medio articulati, in fructu ab articulatione deflexi; bracteae ochreaeformes sed minores. *Sepala* 5, inaequalia, basi connata, obovata, apice rotundata, ad 3·5 mm. longa et 2·5 mm. lata, in fructu parum accrescentia et ad eum adpressa, viridia, margine angustissime hyalina. *Stamina* 8, fauce calycis tubi inserta; filamenta subulata, calycis lobis breviora; antherae suborbiculares. *Ovarium* trigonum, ambitu ovato-ellipticum, angulis globulis subcontiguis 2-seriatim dispositis ornatum; styli 3, filiformes, demum recurvati, stigmatibus subcapitatis. *Fructus* trigonus, nitidus, circiter 8 mm. longus, angulis setis numerosis purpureis 2 mm. longis apice stellato-hamatis hamis reflexis armatus. *Semina* trigona, ambitu ovata, acute acuminata, circiter 6 mm. longa, funiculo 2 mm. longo geniculato suffulta; cotyledones latissimae, reniformes.

Tropical Africa. Uganda: Mt. Elgon, Mt. Nkokonjeru, undergrowth in forest, 1800–2100 m., *Snowden* 946.



Harpagocarpus Snowdenii.

A, lower leaf. B, flower. C, stamen. D, ovary. E, angle of same, showing the two rows of papillae. F, fruit (× 6). G, seta from same. H, seed. I, embryo. J, same with cotyledons spread out.

XLIII.—NOTES ON AFRICAN GRASSES: II.*

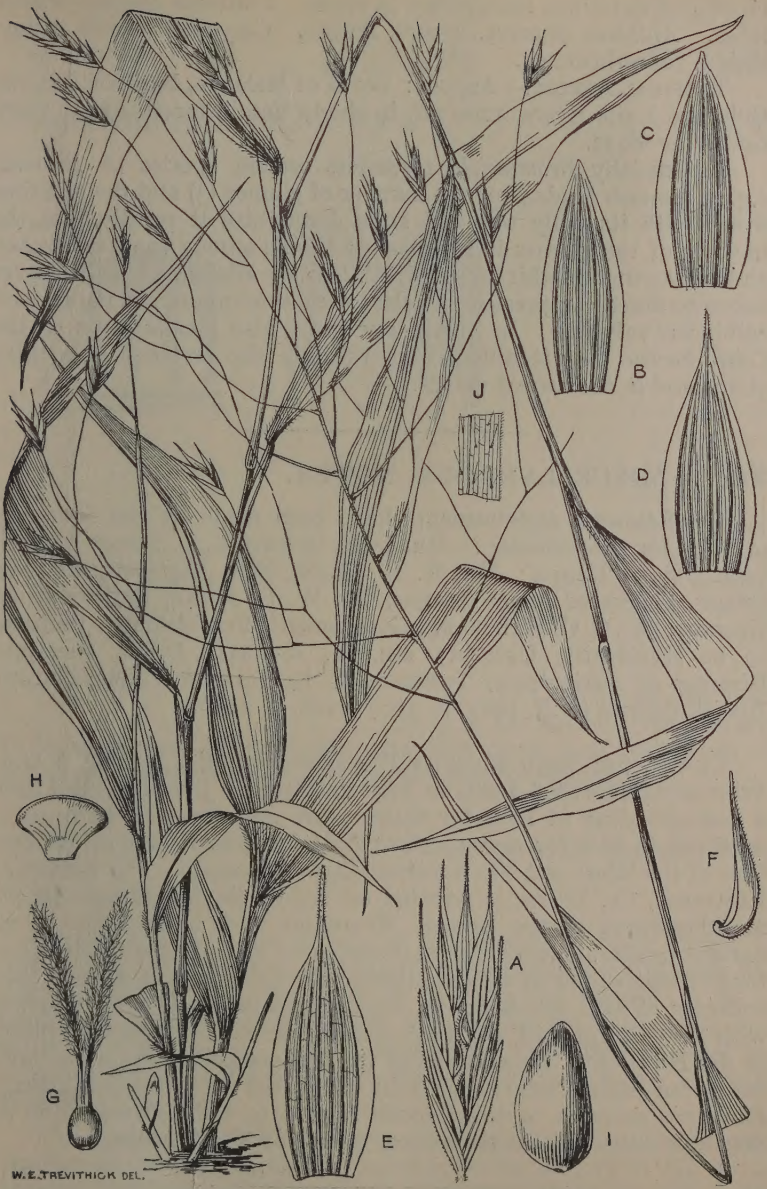
Bromuniola *Stapf et C. E. Hubbard.* Genus novum *Uniolae* Linn., affinis, sed spiculis aristulatis, glumis (3) et valvis 5–7-nervis, nervis aequaliter dispositis, differt. Panicula laxissima, diffuse paucispiculata.

Spiculae oblongae, lateraliter compressae, longe pedicellatae, paniculatae; rhachilla supra glumas et inter anthoecia disarticulata, internodiis longis inter anthoecia puberulis. *Anthoecia* 3–7, hermaphrodita vel summo imperfecto. *Glumae* 3, persistentes, subaequales, carinatae, carinis scaberulis, glabrae, herbaceae, marginibus hyalinis, prominenter nervosae, inter nervos transverse nervulosae; glumae I et II 5-nerviae, acutae vel mucronatae; gluma III 7-nervia, mucronata vel breviter aristata. *Valvae* glumis simillimae, 7-nerviae, acutae, breviter aristatae, carinatae, carinis scaberulis. *Valvulae* valvas paulo breviores, compressae, lineares, gibbosae, 2-carinatae, inter carinas breviter ciliatas concavae, apice obtusae. *Lodiculae* 2, late cuneatae, carnosae. *Stamina* 3. *Ovarium* ellipsoideum, glabrum; styli terminales, liberi, breves, glabri; stigmata plumosa, sub apice lateraliter exserta. *Caryopsis* lateraliter compressa, oblique ovoidea, valva valvulaque laxe inclusa, libera; embryo brevis; hilum punctiforme, basale.—Gramen *perenne*, foliorum laminis lanceolatis vel lanceolati-ovatis, inter venas transverse venulosis. *Panicula* ampla, late aperta, ramis et pedicellis longissimis gracillimis patentibus, spiculis paucis viridibus.

Species 1, angolensis.

B. Gossweileri *Stapf et C. E. Hubbard.* *Culmi* laxe caespitosi, erecti vel breviter ascendentes, ad 85 cm. longi, moderate validi, glabri, laeves, simplices, 5–7-nodi, nodis glabris. *Foliorum vaginae* solutae, striatae, firmae, glabrae, inferiores quam internodia longiores, internodiis superioribus longe exsertis. *Ligulae* brevissimae, truncatae, minute ciliatae, membranaceae. *Laminae* 14–18 cm. longae, 1–2 cm. latae, basi breviter attenuatae, acute acuminatae, planae, utrinque obscure pubescentes, pilis debilibus albis e tuberculis minutis ortis indutae, versus ligulam longe pilosae, marginibus scaberulis. *Panicula* ambitu orbiculata, valde laxe diffusa, 11–20 cm. longa, 14–25 cm. lata; rhachis angulata, gracilis, scaberula; rami solitariae, simplices vel 1–2-furcati, inferiores ad 16 cm. longi, ascendentes vel patentes, ut pedicelli flexuosi, tenues, angulati, scaberuli. *Spiculae* solitarii, 11–17 mm. longae, 4–5 mm. latae, laxe inbricatae. *Glumae* ex ovato-lanceolato ad ovatum vergentes, internodiis inter glumas ad 1 mm. longis; gluma I 6·5–7·5 mm. longa, gluma II 7–8 mm. longa, gluma III 9 mm. longa, arista ad 0·75 mm. longa. *Rhachilla* inter valvas internodiis ad 2·5 mm. longis. *Valvae* ovatae, 8·5–9·5 mm. longae, ex apice aristatae; aristae 2–3 mm. longae, scaberulae, tenues, rectae. Valvulae a latere visae oblique lanceolatae, 6–7 mm. longae, carinis breviter

* Continued from *Kew Bull.* 1926, p. 250.



Bromuniola Gossweileri *Stapf et C. E. Hubbard*, showing habit. A, spikelet (× 4). B, glume I (× 4). C, glume II (× 4). D, glume III (× 4). E, valve (× 4). F, valvule (× 4). G, pistil (× 5). H, lodicule (× 12). I, grain (× 10). J, portion of leaf-blade.

ciliatis et viridibus, marginibus hyalinis. *Lodiculae* albidae, 1 mm. latae. *Antherae* lineares, 2 mm. longae. *Caryopsis* 3 mm. longa, nitida, rubro-brunnea.

TROPICAL AFRICA.—Angola: north of Malange, between Lukala, Gola and Luije rivers, 1200 m., in shady humid forests, June 1925, *Gossweiler* 8933.

Superficially *Bromuniola* resembles certain species of *Bromus*, e.g. *B. ramosus* Huds., but the number of glumes (3) and the glabrous ovary with its truly terminal style distinguish it readily. In the number of the glumes it approaches *Uniola* among the *Eufestuceae*, and in its general habit especially *U. latifolia* Michx., which, however has very much compressed spikelets with more numerous nerves and egibbous valvules. In habit our grass also recalls some of the Centotheceae, but it differs from these in the presence of a third glume and in the awned valves.

XLIV.—MISCELLANEOUS NOTES.

The following appointments have been made by the Secretary of State for the Colonies:—MR. D. L. BLUNT, M.A., Senior Agricultural Officer, Kenya; MR. R. B. JAGOE, B.Sc., Agricultural Field Officer, Federated Malay States; Mr. W. L. MUNN, Coffee Officer, Uganda; Mr. C. G. HANSFORD, Government Microbiologist, Jamaica, to be Mycologist, Uganda; MR. W. NOWELL, D.I.C., Assistant Director of Agriculture, Trinidad, to be Director of Agriculture, British Guiana (*K.B.* 1913, p. 359; 1920, p. 218.).

Lt.-Col. SIR JOHN ROSS OF BLADENSBURG, K.C.B., K.C.V.O.—Prior to his lamented death on July 10th last Sir John Ross had been a correspondent of Kew for many years and the establishment is indebted to him for many valued contributions to our collections. One of the latest was the beautiful *Clethra Delavayi*. His garden at Rostrevor, Co. Down, is situated on the Carlingford Lough in the neighbourhood of the Mourne Mountains and, in addition to its natural beauty, is one of the most favoured spots in the British Isles for the cultivation of tender plants. Sir John was an enthusiastic collector of rare and beautiful trees and shrubs and this, together with his cultural skill, made his garden one of the most interesting in the Kingdom. He was one of the few persons, perhaps the only one in our islands, who successfully cultivated the "Beach heather" *Hudsonia ericoides*, a dwarf shrub related to the cistuses found in maritime situations on the eastern shores of North America.

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